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ABSTRACT

The skill needs of 3,500 Wisconsin employers were surveyed by mail (1,850 usable returns) and by telephone those of 102 of these employers (93 percent response). Findings included the following: (1) most employers face an increasing shortage of skilled workers; (2) employees tend to be deficient in basic skills; (3) employers are striving for continuous improvement; (4) 57 percent of Wisconsin employers have some involvement with education; (5) about 20 percent of Wisconsin businesses are "best practice firms"; and (6) employers emphasize strengthening basic skills at every level and strengthening technical skills at technical colleges. The following recommendations were made: (1) more Wisconsin employers must adopt new technologies; (2) technical colleges must upgrade offerings to meet employers' needs; (3) technical colleges must work with employers to improve access to training; (4) public education must adopt outcome-oriented, competency-based educational objectives; (5) a Certificate of Initial Mastery should be a prerequisite for employment or training for high school students; (6) technical colleges and high schools must improve alternative education to prevent dropout; (7) high school curricula must be redesigned to prepare noncollege-bound students for technical careers; (8) high school counselors must work with employers to improve the school-to-work transition for noncollege-bound students; and (9) educators and counselors must improve career education. (Appended to the technical findings are the survey form and responses, a list of Wisconsin counties, and 13 references.) (KC)

ED344108

A World Class Workforce for Wisconsin

Executive Summary
Technical Findings
Recommendations

Governor's Commission for a Quality Workforce

April 1991

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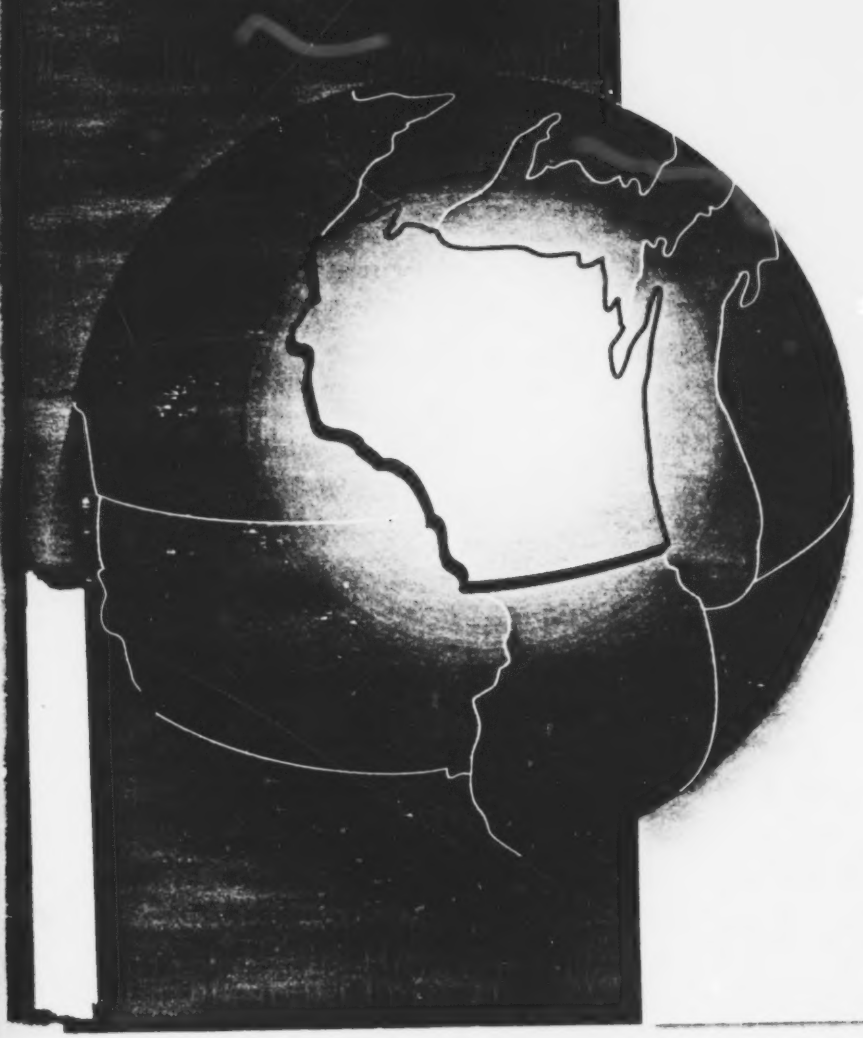

Governor's
Commission
For A Quality
Workforce

April, 1991

Executive Summary

Commission for a Quality Workforce

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Commission for a Quality Workforce
Policy Recommendations

More Wisconsin employers must adopt new technology and methods of organizing work. To support this effort, technical colleges must facilitate employer leadership and participation in worker training and retraining.

Technical colleges must upgrade occupational education to meet the growing needs of employers.

Wisconsin's employers and workers, in partnership with the technical colleges, must reskill the existing workforce for a more competitive economy.

Technical colleges must work with business and industry across the state to improve access to training.

Wisconsin's system of public education must adopt outcome-oriented, competency-based educational objectives throughout the primary and secondary grades.

Educators, the business community, and state policy makers must establish attainment of Certificate of Initial Mastery as a prerequisite for eligibility for employment or training opportunities for high school students.

Technical colleges and high schools must substantially improve alternative educational programs for students at risk of dropping out of high school and for adults in need of high school instruction.

High school curricula must be redesigned to prepare non-university bound students for technical careers.

Educators and counselors in high schools must work with employers to improve the transition from school to work for students entering the workforce directly.

Educators and counselors in primary and secondary schools must improve career education for all students throughout their educational experience.

TOMMY G. THOMPSON

Governor
State of Wisconsin

April 1991

To the Citizens of Wisconsin:

The State of Wisconsin is renowned for its many resources - one of the greatest being its highly trained workers. Wisconsin's skilled and committed workforce has helped earn for our state a national reputation for a healthy economic environment. Yet, the growing demands of new technology in the workplace and reports of labor shortages due to rapidly changing skill needs indicate challenges to our productive momentum. As we look to the 21st century and beyond, all of the critical elements of this challenge must be examined to insure a World Class Workforce for Wisconsin.

In January of 1990, I appointed the Commission for a Quality Workforce to examine this workforce issue in conjunction with the Wisconsin Technical College System. The goal of this Commission was to crystallize the issues and establish the necessary direction for skill development policies in the State of Wisconsin. In my opinion, the Commission has not only met, but exceeded my expectations. I commend the visionary Commission, under the leadership of Carl Weigell, for their impressive and timely effort.

The Governor's Commission for a Quality Workforce was formed because of my pledge to uphold the Wisconsin tradition of skilled workers who are second to none. Through investments in our people, starting in the schools and continued in the workplace, we create a foundation for on-going innovation and leadership among Wisconsin employers. We are fortunate to live in a state which supports this foundation through the exemplary skills training provided by our Wisconsin Technical College System. With the results of this study in hand, the Technical College System, in conjunction with high schools and the business and labor community, will be able to enhance significantly the development of this state's valued skilled worker reputation.

My sincere thanks to the members of the Commission for a Quality Workforce for their diligent efforts in studying the issues and formulating the recommendations in this report. May we now as employers, as educators, as policy makers, and as employees unite to maintain the high quality workforce needed for a strong economic future in the State of Wisconsin.

Sincerely,

TOMMY G. THOMPSON
Governor

TGT/tfn

Room 115 East, State Capitol, P.O. Box 7863, Madison, Wisconsin 53707 • (608) 266-1212 • FAX (608) 267-8983

Executive Summary

The economic realities facing workers in Wisconsin have changed dramatically. Established workers are experiencing stagnant or declining earning power. For many households, earnings are higher only because more family members are going to work or working longer hours. For many young people entering the job market, full-time employment in positions paying enough to support an independent adult or family, offering job security and benefits, and providing opportunities for advancement, have become unrealizable expectations.

U.S. dominance in international markets for most of the last fifty years financed the American Dream. Productivity growth in the U.S., however, has failed to keep pace with growth in other countries. American business and industry have responded by cutting costs and restructuring their operations. But a new set of competitive standards has emerged in the world market place. Other countries have not just improved productivity. They have also positioned themselves to compete more effectively for customers who value quality, variety, customization, convenience, and timeliness. By trying to compete on cost alone, many producers in Wisconsin and in the nation as a whole are simply being outclassed in the world market.

Governor Thompson charged the Commission for a Quality Workforce with assessing the skill needs of employers and developing strategies to ensure that employers in Wisconsin enter the twenty-first century with the workforce they need to compete in the world marketplace. The Commission's suggestions for improving the skills of Wisconsin's workforce and strengthening the state's Technical College System are divided into two sections: *Building a World Class Workforce* focusing on the need to upgrade the skills of the existing adult workforce and *Educating the Workers of Tomorrow* focusing on the need to improve the educational performance and preparation of our future workers.

Action Plan for Building a World Class Workforce

Across Wisconsin leaders in business and industry have begun to express concern about the skill levels of our workforce. As the workforce ages and a large group of older, highly skilled workers retires, employers are beginning to experience shortages of skilled labor. The limited availability of skills among their remaining front-line workers is hampering their ability to compete effectively.

The roots of the problem are complex. As older, more highly skilled workers leave the workforce, the supply of new workers is shrinking. New workers frequently lack not only experience, but basic and technical skills needed in the workplace as well. But the declining supply of skilled new workers is just one reason employers give for their lack of competitiveness. At the same time, they are faced with the need to implement new technologies and ways of organizing work that demand higher skill levels and broader skill requirements for all workers.

One way employers in Wisconsin are addressing this problem is by hiring experienced workers away from other firms. Clearly, firms relying on this strategy can be successful only in the short run. Longer term solutions lie in changing the attitudes of employers, workers, and educators towards the provision of on-going training for all workers.

These longer term strategies require:

employers and workers to raise their expectations about technical and occupational education and the competencies it can impart;

employers to increase the amount of training provided to their own front-line workers;

employers, workers, and educators to work together to increase the skills and knowledge that new workers bring to the job.

The Commission found broad consensus across the state that worker training and basic education must be strengthened. Employers cited the need to expand and improve the training available through technical colleges, high school vocational programs, apprenticeship and other work-based learning programs, and federal and state job training pro-

grams to improve the job-specific skills of their front-line workforce.

Policy Recommendation #1: More Wisconsin employers must adopt new technology and methods of organizing work. To support this effort, technical colleges must facilitate employer leadership and participation in worker training and retraining.

Productivity growth requires not only adopting new flexible technology, but changing the organization of work and the skills and knowledge of workers. Employers in Wisconsin are beginning to redesign operations to better meet the needs of their customers. They are placing greater emphasis on improving the efficiency of customized production through appropriate use of workers and technology. Successful firms are flattening out their managerial structure, pushing more decision making authority down to front-line workers.

The faculty and staff of Wisconsin's technical colleges are natural partners of employers in designing and implementing new programs to facilitate these changes. Worker training and retraining are an integral part of the mission and activities of the state's Technical College System. Technical assistance, customized training, and occupational instruction tailored to meet the needs of employers are already growing segments of technical college operations. What is missing, however, is a concerted effort on the part of the Technical College System to work with business and industry across the state to promote and plan greater involvement by employers in broad skills development. Strategies to implement these changes:

- Provide training for adopting new ways of organizing work and upgrading the state's workforce.
- Set direction for worker training through employer consortia.
- Establish joint Technical College/University of Wisconsin/independent college Applied Technology Centers to increase awareness of new technology and to provide assistance in plant modernization through assessment, planning, consulting, and training to implement off-the-shelf technological solutions.
- Improve monitoring and evaluation of vocational-technical training to ensure it meets the needs of employers and workers.

Policy Recommendation #2: Technical colleges must upgrade occupational education to meet the growing needs of employers.

Business and industry want workers who are workplace ready. Meeting the standards demanded by employers will require increased attention to mastery of workplace-based skill competencies. Technical college students must be challenged to achieve these high levels of competency and rewarded when they do. But competency alone is not enough. Measurement must be performance-based, capturing not only competency, but judgment in decision making and problem solving situations. In addition, educators must not only assess individual students, but also evaluate entire training programs to ensure that the outcomes of the programs meet the needs of students, workers, and employers. Strategies to implement these changes:

- Expand and support outcome-oriented, competency-based educational objectives for all Technical College programming, including occupational preparation, basic skills instruction, and industry-based technical training.
- Expand professional growth opportunities for technical college faculty and staff.
- Incorporate best practice training standards and practices into the instructional programs of the Technical College System.

Policy Recommendation #3: Wisconsin's employers and workers, in partnership with the technical colleges, must reskill the existing workforce for a more competitive economy.

Upgrading the skills of Wisconsin's workforce will require a concerted and continuing effort on the part of employers and the technical colleges. Along with determining what skills workers will need to enable business and industry to regain its competitive edge, on-going training for all workers must become a priority of Wisconsin's employers. A team effort, pairing technical college staff with employers and workers, is needed to ensure success.

Employers Cite Rising Skill Needs in Wisconsin

Across Wisconsin, leaders in business and industry are expressing concern about the skill levels of our workforce. In November 1990, the Governor's Commission for a Quality Workforce asked Wisconsin employers about the changing skills needs of their labor force. The Commission surveyed employers from five industrial sectors: business services, health services, construction, and durable and nondurable manufacturing. The Commission chose these sectors because of their potential to offer high skill/high wage jobs to Wisconsin workers. We took care to include responses from owners and managers of firms of all sizes from all over the state. One thousand eight hundred and fifty employers generously gave of their time to share their insights with the Commission.

Increasing skill requirements are the norm in Wisconsin: Overall, three out of five employers anticipate that their workers will face raising skill requirements over the next five years.

Growing labor shortages stifle productivity: Across Wisconsin, nine out of ten employers surveyed report skilled labor shortages. Three out of four employers indicate that the declining supply of skilled labor stifles productivity in their operations. More than half of the employers surveyed say that finding workers ready to learn job-specific skill is a problem.

Poor basic skills: One in four employers rate the overall basic skills of their front-line workers as poor. More point to problems with writing, reading, and using fractions. Deficits in math skills, particularly in algebra, are hampering employer efforts to adopt new technology or implement quality improvement programs.

Few employers assess needs or provide training: Despite changing skill needs, few employers have formally assessed the skill levels of their workforce. Most employers continue to provide front-line workers with minimal training, preferring to hire skilled workers away from other firms than to provide substantial training themselves.

Strategies to implement these changes:

- Expand competency testing of new hires and existing employees.
- Expand employer-sponsored skills training through increased continuing education for adult workers on technical college campuses, through private and in-house training efforts, expanded apprenticeship programs, and through Workplace Learning Centers.
- Increase collaboration between Technical College and University of Wisconsin faculty to promote work-based learning.
- Expand awareness of the need for lifelong learning.

Policy Recommendation #4: Technical colleges must work with business and industry across the state to improve access to training.

Making education and training opportunities available on a flexible schedule convenient to employers and workers must become a priority for the state's technical colleges. By expanding outreach efforts and embracing new modes of service delivery, educators will be better able to serve both small and medium-sized firms and those remote from technical college facilities. By working with employers to develop training consortia, technical colleges will be better positioned to provide cost effective education and training programs to small and medium-sized firms. In addition,

technical colleges must be able to mount programs when and where they are needed. Though safeguards must be in place to prevent overloads, teaching in a technical college cannot be viewed simply as a 9 to 5 job. Strategies to implement these changes:

- Expand outreach efforts to business and industry through adopting more flexible schedules for training provision.
- Expand options for individualized learning of basic skills and technical/occupational instruction through the use of distance learning and open entry/open exit programming.
- Establish additional Workplace Learning Centers.
- Expand and enhance strategies for marketing and recruiting technical college programs to adults.
- Form training consortia to pool resources of small and medium-sized firms.
- Increase minority student enrollment and completion of technical programs leading to placement in high skill/high wage careers.

Action Plan for Educating the Workers of Tomorrow

Many of our students simply are being short-changed by the existing system of public education. Comparisons of American students with those from other countries with advanced economies indicate that our students are not as well-prepared academically. In international tests of basic educational preparation in mathematics, science, language arts, and social studies, our best and brightest students consistently perform worse than the average student in a host of countries with higher educational standards. Not only are their standards higher, but the vast majority of their students are expected to satisfy these higher standards.

While our college-bound students are less prepared than their counterparts overseas, our non-college-bound students fare even worse. Because we do not expect them to succeed, too often they do not. Unlike students in other developed economies, they are not expected to take a challenging high school curriculum or to meet high educational standards. Most students in the U.S. remain in school longer than their counterparts overseas, but still leave school lacking basic skills and knowledge mastered by all students in other countries.

We all have a stake in improving the education and training of our youth. Whether they are bound for college or not, they are the future workforce of the state and a valued resource for our communities. As part of our deliberations, the Commission focussed on the issue of improving the education and training new workers bring to workforce. The Commission also examined the issue of improving the transition from school to work.

Policy Recommendation #5: Wisconsin's system of public education must adopt outcome-oriented, competency-based educational objectives throughout the primary and secondary grades.

Together with the Commission on Schools for the 21st Century chaired by Ody Fish, the Governor's Commission for a Quality Workforce believes that we must refocus Wisconsin's system of public education to better meet the needs of the entire community. Much of the effort at school reform in Wisconsin over the last decade has been directed at increasing the resources available in schools. Evaluation of schooling has focussed on meeting a set of standards with regard to instructional time, curricular offerings, testing, and the like. Standards are necessary to ensure that educators and students have the resources they need to engage in effective schooling, but standards alone are not enough. We join with the Fish Commission in believing that schools should be evaluated in terms of how well they do at imparting to students what they need to know to be effective members of our society. Strategies to implement these changes:

- Establish goals and obtain agreement in the community on essential learner outcomes.
- With input from educators, the business community, and the public, establish a statewide framework for

Best Practice Firms in Wisconsin Seek High Skill Workers

Employers across Wisconsin are changing the way they do business. A sizable group, about twenty percent of those responding to the Commission's survey, are what we call "best practice" firms. Managers in these firms report making a number of significant changes in their operations. Responding to new standards of competition, these employers are not only making greater use of new technology and expanding their operations, but also adopting new management practices. These include: introducing work teams; establishing labor-management councils; and adopting new quality systems or quality improvement processes. Best practice firms in Wisconsin can be found in all five industrial sectors surveyed by the Commission. Best practices are also reported by firms ranging in size from fewer than 50 employees to more than 250. Medium to large-sized manufacturers are most likely to fall in the best practice group, smaller health services and construction firms, the least likely.

Compared to other firms the Commission surveyed, best practice firms are

- more likely to report difficulties in finding skilled workers;
- one and a half times more likely to attribute skill shortages to rising skill needs in their workforce, to workers placing a low value on education, and to a poor education system;
- more likely to rate the basic skills of their workers lower than do others;
- more likely to report that technological changes in their operations have increased the skill needs of their workers;
- more likely to have increased the number of front-line workers and to anticipate adding more new workers;
- more likely to be working with technical colleges to develop the skill base of their employees;
- only slightly more likely to report providing more training to technical and production workers;
- more likely to have spent a greater share of their training dollars developing the basic skills of their front-line workers.

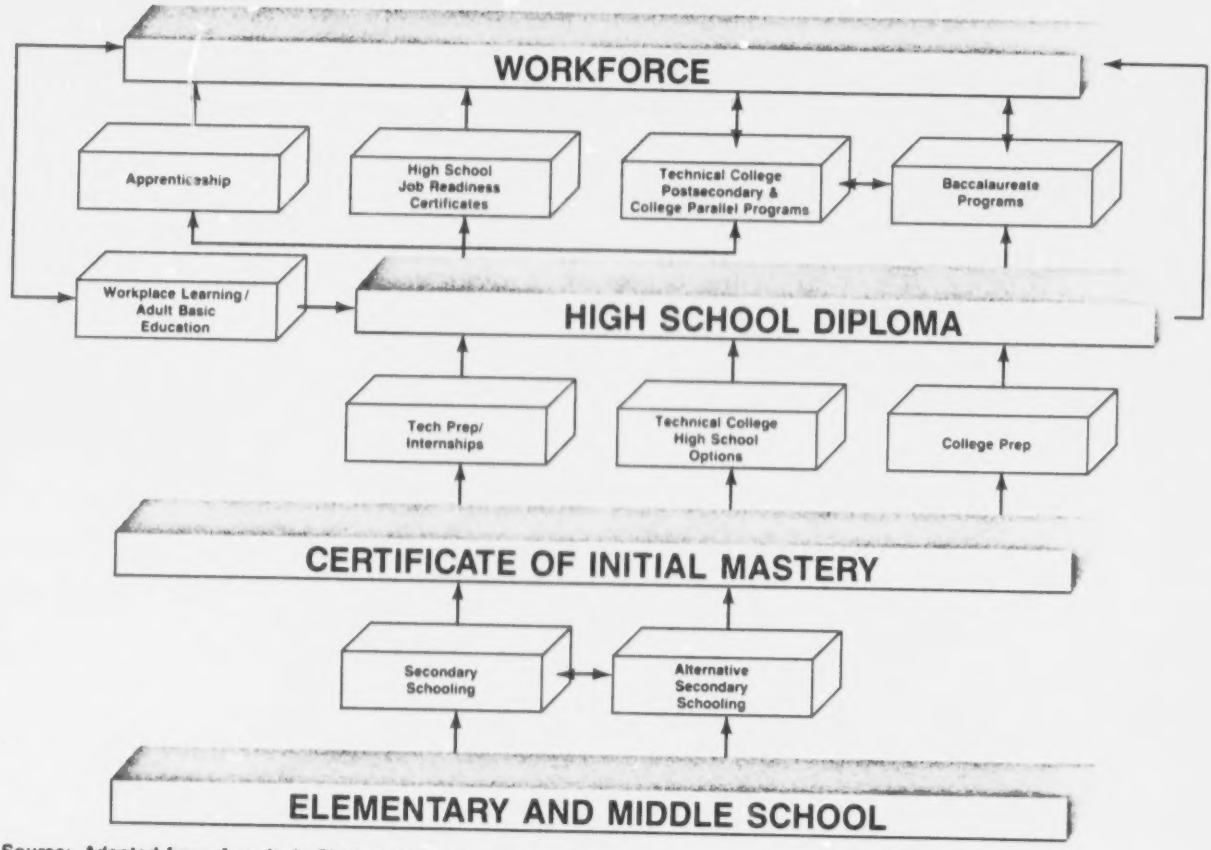
curriculum and student assessment for all primary and secondary schools in the state.

- Establish a continuous process of assessment of pupil performance.
- Adopt new rules governing teacher preparation, certification, and staff development to implement outcome-oriented education across the state.
- Develop programs to foster links between educators and the business community.

Policy Recommendation #6: Educators, the business community, and state policy makers must establish attainment of Certificate of Initial Mastery as a prerequisite for eligibility for employment or training opportunities for high school students.

We must raise our expectations for the educational performance of all students. One way of doing this is to set

Pathways to a World Class Workforce for Wisconsin



Source: Adapted from *America's Choice: High Skills or Low Wages!*

Imperatives for Creating a World Class Workforce

Creating a High Skills Economy is Essential to International Competitiveness. Meeting the competition — and raising living standards — means changing the way America does business. Given appropriate skills, and the right mix of technology and managerial techniques, American workers can outperform workers anywhere in the world. Improvements in productivity and quality will demand higher skill levels than are currently available in the state's labor force. In the past, employers have invested in equipment and physical plant, but not sufficiently in the people who make the technology perform. Employers will need to continue upgrading their plant and equipment. At the same time, they must make greater investments in worker training.

Valuing Effort over Natural Ability Will lead to Higher Educational Achievement for All. In the U.S., more than in any other country in the world, educators, employers, and the general public believe that natural ability, rather than effort, shapes achievement. Studies show that given the right conditions and encouragement to learn, most students can meet high performance standards. Educators and employers must work together to set these standards and reward students who meet them with opportunities for employment and further training.

Building Linkages between Business, Labor, and Education is Essential. Creating a more highly skilled workforce will require commitments beyond greater investments in education and training. It will require: employers working together, and with educators, to identify skill competencies and standards needed in the workplace and to provide work-based learning experiences for students and workers; workers embracing and supporting workforce training and retraining; educators seeking input of employers and workers in setting education standards and curriculum.

Education and Training Institutions Must Adopt a Customer Focus. Education and training providers must become more responsive to the needs of their customers — employers seeking more highly skilled workers, workers needing retraining, and students seeking to enter or re-enter the workforce. Technical education and training must meet the standards sought by best practice firms. Training must also be accessible to all who seek it, with an emphasis on flexibility and rapid response.

Educators Must Measure Performance and Increase Accountability. Meeting the standards demanded by employers will require increased emphasis on mastery of competencies identified in the workplace. Students should be challenged to achieve these high levels of competency and be rewarded when they do. Educators must not only assess individual students, but also evaluate entire training programs to ensure that the outcome of the program meets the needs of students, workers, and employers.

Lifelong Learning Will be the Norm for all Workers. In a dynamic, healthy economy, new technology and new ways of organizing work require a workforce and employers who actively embrace change. Today, employers must provide on-going training and encourage workers to seek additional opportunities to obtain new skills and knowledge. Similarly, *all* workers, not just those who want to get ahead, must accept the need to engage in lifelong learning.

new educational standards based on defined competencies for all students, benchmarked to the highest in the world. Most students should be able to meet these standards by the end of tenth grade at about age 16. High school programs would continue to provide instruction in basic skills to students who had not yet met the standards. Those demonstrating their competency would be awarded a Certificate of Initial Mastery. Obtaining this certificate would permit high school students to pursue a number of alternative paths that would be available in a redesigned high school curriculum leading to a high school diploma. An important way that employers could convey their commitment to increasing the educational performance of all students would be to restrict employment of students who had not obtained a Certificate of Initial Mastery or were not working toward its attainment. Strategies to implement these changes:

- Design and implement changes in curriculum and assessment leading to granting of Certificates of Initial Mastery.
- Adopt needed changes in child labor laws to restrict hours of employment.

Policy Recommendation #7: Technical colleges and high schools must substantially improve alternative educational programs for students at risk of dropping out of high school and for adults in need of high school instruction.

The traditional secondary school setting has best served students bound for university. While many Wisconsin high school students seek a four-year degree, seventy percent will neither attend college nor complete their studies if they do enter university. We need to restructure the high school curriculum to provide more focussed learning experienced for all students. Even when redesigned, the secondary school system may not be able to meet the needs of every student. The Commission supports the Technical College System's efforts to seek statutory changes to permit high school students age 16 or older to attend technical college full or part-time to work toward earning a high school diploma. The technical college programs should be designed to meet the state requirements for graduation. Students completing the programs should be granted a regular high school diploma.

Earning a high school diploma once a student falls behind or leaves high school is much more difficult. Yet without a diploma, our youth face a bleak future and limited hope of economic self-sufficiency. Students need more information about labor market conditions and high school options. Second chance programs available through technical colleges must continue to provide adults with opportunities to pursue a high school diploma or to prepare for postsecondary education and training. Strategies to implement these changes:

- Seek statutory changes to permit interested students 16 or older to attend technical college on a full or part-time basis to complete high school.
- Provide mandatory technical college experiences for students participating in statutory at risk programs.
- Expand second chance programs in technical colleges to permit non-completers to return to school to earn a high school diploma or complete a high school equivalency program.
- Develop and expand innovative and accelerated basic skills development programs throughout the Technical College System.

Policy Recommendation #8: High school curricula must be redesigned to prepare non-university bound students for technical careers.

Wisconsin, unlike many states, has a strong technical college system. Preparing new workers for technical and entry-level positions is a central mission of the Technical College System. What is missing is a strong link between the technical colleges and the kinds of schooling offered in the state's secondary schools. We need to design and put in place a parallel high school curriculum to prepare high school students for technical education in the way that students are now prepared for baccalaureate education.

A Tech Prep curriculum would enable high school graduates to make a successful transition to postsecondary

Tech Prep Prepares Youth for Technical College or Work

Tech Prep programs offer high school juniors and seniors a curriculum of applied academic and technical course work in broad occupational areas. After obtaining a Certificate of Initial Mastery, interested high school students would be eligible to enroll in one of several kinds of Tech Prep programs offered through their school district in conjunction with their local technical college. The mix of programs and specific curricula could be expected to differ from one school building or district to the next in response to community interest and labor market conditions. The Commission strongly believes, however, that high school curricula should provide youth with clear pathways to enrollment in technical college programs, to entry-level positions in the labor market, or to apprenticeships in the skilled trades.

Tech College Prep Programs: Sequence of courses jointly designed by high school and technical college faculty. High school students successfully completing the course sequence would have the skills, knowledge, and competencies needed to enter and complete a two-year associate degree program at the technical college in a specific occupational area.

Occupational Prep Programs: Sequence of courses designed by high school faculty with the assistance of representatives of the business community. High school students successfully completing the program would have the skills, knowledge, and competencies needed to obtain an entry-level job in a semi-skilled or skilled occupation. They would also be prepared to obtain further education and training through postsecondary programs at a technical college.

Trade Prep Programs: Sequence of courses jointly designed by employers, high school faculty, and technical college faculty would provide high school students with the competencies needed to enter and complete a skilled apprenticeship program leading to journeyman status in an occupational area. The high school portion of the program might include a school-supervised work experienced with an adult worker-mentor. After earning a high school diploma, the student could choose to be indentured as an apprentice, begin working and attend related instruction with other apprentices.

education or to work. As it is evolving in Wisconsin, Tech Prep combines a common core of applied academic and technical courses at the high school level. Through integrated curricula in broad occupational areas, students acquire higher level basic and pretechnical skills needed in the workforce and for further technical education. Strategies to implement these changes:

- Establish Tech College Prep/Trade Prep/Occupational Prep options with appropriate resources for high school students statewide.
- Expand existing apprenticeship programs for high school graduates.
- Permit interested students 16 or older to attend technical college on a full or part-time basis to complete high school.

Policy Recommendation #9: Educators and counselors in high schools must work with employers to improve the transition from school to work for students entering the workforce directly.

For the forty to fifty percent of high school students not seeking postsecondary education, our communities offer little help in smoothing the transition from school to work. Instead, we rely primarily on parents to provide youth with leads and assistance in entering the full-time labor market. This solution works best for youth whose parents themselves are successful in the labor market. For the increasing proportion of youth being raised in poverty, parents

Internships for Adulthood

Goal: To provide high school students with educational experiences in work settings, facilitated by employers and adult worker mentors. These internships would be designed to:

- utilize workplaces and other community settings as learning environments
- link work experience to academic learning
- give youth constuctive roles as workers and learners simultaneously
- foster mentor relations between youth and adult.

Eligibility: Successful attainment of Certificate of Initial Mastery and active participation of parents in designing, supporting, monitoring, and evaluating the work-based learning experience would be required for participation.

Curriculum: Various options are possible. As an example, students enrolled in an internship would spend:

- one day a week in a paid job setting;
- one day a week at a technical college campus or at their local high school in instruction related to their internship;
- three days a week attending high school classes in academic subjects and electives.

can provide little more than encouragement. Strategies to implement these changes:

- Establish school/business partnerships with all employers of high school students.
- Expand availability of work-based learning experiences, including internships, for high school students.
- Examine extending the school year and other alternatives to allow time for work-based learning in secondary education.
- Implement Education for Employment curriculum in all school districts to improve career awareness.

Policy Recommendation #10: Educators and counselors in primary and secondary schools must improve career education for all students throughout their educational experience.

Our future prosperity depends on the availability of a workforce with high basic skill levels, technical know how, and the willingness to view education and training as a lifelong process. The business community and educators must communicate these needs to parents and to students. Together, they must encourage more students to prepare for and to pursue technical training in high school and through postsecondary opportunities in technical colleges. At a minimum, technical colleges need to set goals for recruiting and retaining at least twice as many students out of each high school class as they do now. Two strategies that would assist in making these changes:

- Improve and expand marketing of technical career paths.
- Expand technical college experiences for high school students.

Call to Action

Competing in today's global economy demands a passion for excellence in the board room, in the workplace, in the classroom, and in the home. Employers in Wisconsin have a choice and we all have a stake in the outcome. Employers can continue to pursue a strategy in the world marketplace aimed at cutting the costs of production by relying on increased mechanization, mass production, and low skills. The resulting lower real wages most American workers will be able to command will continue to drive down their standard of living.

A different future — one in which highly skilled workers can command higher wages — is possible. Creating this future will require employers to reorganize their workplaces to demand more from their workers, from educational institutions, and from students seeking to enter the workforce. Choosing a high skill/high wage strategy will permit business and industry in Wisconsin to compete in the high end of the world market for goods and services. But employers cannot do it alone.

Educators, leaders in business and industry, and front-line workers will need to join forces to create and sustain a high skill/high wage economy. Together, they will have to identify skill needs, to overcome skill deficits in the existing workforce, to make training available when and where it is needed, and to improve the skills, knowledge, and attitudes of new workers. Students will need to form new commitments to working toward higher skill levels in return for rewards in the workplace. Parents must be committed to putting education first, providing educators with the support they need and students with the environment and encouragement they need to succeed. Finally, state policy makers must be willing to pursue initiatives that place a priority on technical training and education.

Related Reading

Major resources consulted by the Commission include:

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A World Class Workforce For Wisconsin

Governor's Commission For A Quality Workforce

April, 1991

Technical Findings

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A World Class Workforce For Wisconsin

Technical Report

A Report to:
Tommy G. Thompson
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The Governor's Commission for a Quality Workforce
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April, 1991

24

Overview

Governor Thompson charged the Commission for a Quality Workforce with examining the present and future skill needs of Wisconsin employers as part of an ongoing effort to set the course for economic and education policy development. A variety of recent national reports indicate that a growing number of jobs in the U.S economy will require post-secondary education but not baccalaureate degrees. These reports also suggest that there will be a shortage of prepared skilled workers to fill these jobs. As a key educational resource for skilled worker development, the Wisconsin Technical College System has worked closely with the leadership of the Commission to provide for a statewide exploration of the workforce preparedness issue and the options for skills development policy.

The threat of a skilled worker shortage attracted the serious attention of Wisconsin leaders in business and education concerned with the future economic implications of a skilled workforce. Fifteen members served on the Commission and over 46 firms contributed financial support for its activities. In addition, 1,850 employers generously gave of their time and expertise by answering a mail survey. This survey, conducted on the Commission's behalf by the University of Wisconsin Extension's Wisconsin Survey Research Laboratory (WSRL), contacted a random sample of 3,500 employers in Wisconsin representing a cross section of firms by size and geographic areas in key industrial categories: business services, health care, durable and non-durable manufacturing, and construction. The objective of the survey was to learn more about the skill needs of Wisconsin's workforce.

This summary highlights the key findings of the 25-question survey based on the 1,850 responses (53%) that the WSRL received.

To what extent are Wisconsin employers experiencing a skilled labor shortage?

Most employers face a significant challenge in finding sufficient numbers of skilled workers throughout Wisconsin. For companies who have come to rely on the State's quality workforce, this shortage presents an unplanned obstacle to reaching their full competitive potential. The severity of the shortage is most dramatic as the skills required tend to be more technical in nature.

How do employers rate the skill levels of their non-managerial employees?

Overall, workers tend to be stronger in areas reflecting motivation and interpersonal skills such as ability to work with others, work ethic, and ability to follow directions: factors whose relation to formal education are unclear. However, survey responses regarding basic skills such as general reading, writing, addition and subtraction, and using fractions indicated that a substantial number of employees are deficient in these basic skills. Considering the importance of these fundamental skills, it is particularly significant that 8 percent report that employees are poor or very poor at general reading, 25 percent in reading, 31 percent in writing, 12 percent in addition and subtraction, 31 percent in using fractions, and 47 percent in algebra.

What technical skills are most needed and projected by firms?

Responses suggest that employers have different expectations of the high schools and technical colleges as to what skills should be taught in the respective institutions, at least in emphasis. Clearly, employers place more emphasis on basic skills in the high schools together with general computer skills. On the other hand, employers place greater emphasis on computer training at the technical colleges, especially on technical computer skills. Consistent with the general emphasis on computer training, employers report that they anticipate that their future skill needs are greatest in this area.

What efforts are firms currently making to meet their skill needs?

Wisconsin employers have made some effort to improve skill levels by investing in training for their workforce. Many have used Technical Colleges. The employer investment in human capital, however, is not great enough to produce the high performance and high skills demanded in a globally competitive economy. Lack of aggressive training initiatives fosters a vicious cycle of skill shortages, stifled innovation, and unrealized efficiency. Employers are now faced with few options as traditional tactics, such as recruiting skilled workers from other firms, fail to be effective. Unfortunately, as the time ticks away in this realization process, the skill levels needed continue to rise. A strong Wisconsin economy will require skill levels in the workforce to be higher than average in most cases. Training cannot be overlooked as a key activity for employers to ensure the skill levels needed in Wisconsin for the future.

What are the impacts of organizational change and new technology on skill requirements of Wisconsin firms?

Leading edge Wisconsin firms are incorporating multiple innovations in their organizations, typifying the spirit of continuous improvement. New technology is certainly no stranger to the state's work environment with seventy percent of employers noting a recent investment. Increases in the skill levels and the size of the company workforce has corresponded with the investment in new technology and workplace innovations. Changes which are driven by new quality systems, new production processes, and team management concepts are creating job structures which are more flexible and technically demanding than in the past. This trend is predicted to continue and expand into the 21st century.

Are Wisconsin employers willing partners in education?

Fifty-seven percent of Wisconsin employers have some kind of involvement with education and training organizations. Many have made donations to education and some have been involved on boards and committees. In addition, three-quarters of the state's employers indicated an open-door to even greater and more meaningful involvement with education. Essentially, no barriers exist to impede stronger partnerships. Educators need to insure that these vital and willing partners have frequent and multiple avenues for involvement with students and faculty both in the classroom and in the workplace.

Where should Wisconsin's priorities focus related to workforce skills development?

Excellence at the front end is the message from Wisconsin employers who emphasize strengthening basic skills in education at every level--elementary, secondary and technical college. Employers give the highest priority to expanding and improving technical training and emphasize the need for coordination between technical colleges and the workplace.

Priorities for improving job specific skills for Wisconsin's workforce underscore the importance of building a strong foundation for technical skill development. The expansion of vocational programs in Wisconsin high schools is a key initiative. The need for lifelong learning requires strong coordination between employers and technical colleges. Wisconsin employers view this as a priority. Education is definitely considered a key ingredient to strengthening productivity by creating a **World Class Workforce for Wisconsin**.

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SURVEY OF SKILL NEEDS

1. Survey of Skill Needs

A. Purpose of the Survey

National studies abound concerning the shortage of a labor force skilled in the areas that will influence high productivity and economic strength into the 21st Century. Wisconsin leaders have become increasingly concerned about these projections and the outlook for our state on the issue of skill levels in the workforce. The topic of skills must be discussed, not in isolation, but with due consideration of the historical commitment of the state's educational system to produce the skills needed by Wisconsin employers.

In order to learn about skill levels in Wisconsin and projected needs, it became clear that Wisconsin employers needed to have a forum to voice their opinions, experience, ideas, and needs related to the people who make up Wisconsin's workforce--their non-managerial employees. A survey of Wisconsin employers was deemed an appropriate and practical way of getting a snapshot of the Wisconsin skill levels in the workforce and the predictions of employers for the future.

The Governor's Commission for a Quality Workforce conducted a survey of Wisconsin employers in the fall of 1990 to retrieve state specific information on the key issues of contemporary education and employment discussions:

- Evidence of the existence and extent of a skilled worker shortage in Wisconsin
- Assessment of current skill levels among non-managerial workers
- Projected skill needs of the future
- Effectiveness and future role of Wisconsin's education and training resources for employers

The survey results will be used to support public policy decisions which relate to the enhancement of skill levels among Wisconsin workers of today and tomorrow. This information will set the basis for strengthened partnerships between educators and employers thereby enabling more mutual and meaningful planning. These liaisons will advance measures which secure the World Class Workforce needed for a highly productive Wisconsin economy in the future.

B. Survey Methodology

Survey Sampling

In surveying employers about their skill needs, a central concern of the Governor's Commission for a Quality Workforce was ensuring that the responses would be representative of employers across the state. Using data from the Wisconsin Department of Industry, Labor and Human Relations, the Wisconsin Survey Research Laboratory (WSRL), created a random, stratified sample of 3,500 firms so that the results of the survey reflect the actual distribution of firms in Wisconsin by number of employees, industrial classification, and location. The sampling was targeted toward industries that both depend most heavily upon skilled workers and form the economic base of the state: durable and non-durable goods manufacturing, construction, health services, and business services.

For purposes of sampling and analysis, firms in the five industry groups were subdivided by number of employees into three size categories: small (10 to 49 employees); medium (50 to 249 employees); and large (250 or more employees). Due to difficulties in interpreting responses, firms with fewer than ten employees were excluded from the sample. Firms in the 15 industry by size groups were further subdivided by location in urban or rural counties. For purposes of the sample, counties included in part of a U.S. Census-designated Metropolitan Statistical Area (MSA) were considered urban, all other were considered rural.

Survey Process

A survey questionnaire of 25 items was mailed in early October 1990. Questions were designed by members of the Commission with technical assistance from the staff of the Wisconsin Vocational, Technical, Adult Education Board office. Other survey tools of this nature were consulted particularly those developed by similar commissions in other states.

Expertise of the WSRL was valuable in performing the technical tasks related to the survey sample, mailing, data collection, and analytical data production. In addition, the WSRL conducted a follow-up telephone interview with a sample of 110 survey respondents in a pool of 809 surveyed employers who agreed to be part of the telephone survey that further clarified specific items.

Survey Response

Commission members are pleased to report a 53 percent response rate with 1,850 Wisconsin employers participating in the detailed survey with another 102 of these employers partaking in the telephone survey (93 percent response rate). This overwhelming response alone validates the critical nature of the issue of worker preparedness among Wisconsin's employers. Responses were weighted to be representative of the total picture of Wisconsin employers by industry type and size.

C. Profiles of Survey Respondents

A comparison of the profile of survey respondents with DILHR data on line of business, number of employees, and location of firms in Wisconsin indicates that the kinds of firms responding to the survey actually reflect their incidence in the state.

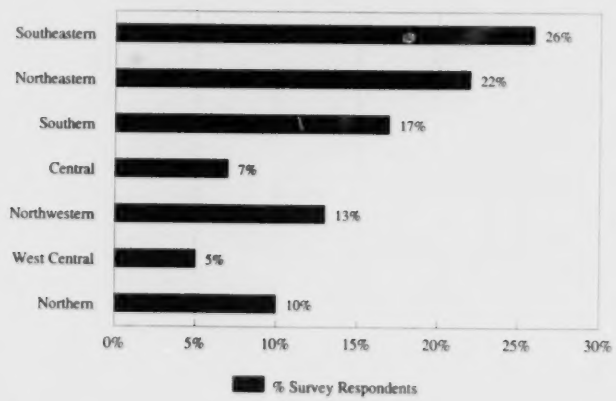
Geographic Distribution

Survey respondents were two and a half times more likely to be located in an urban setting than in a rural one. Urban respondents accounted for 71.2 percent of the total respondents, rural ones for 28.8 percent. This split reflects the kinds of industries included in the survey sample and the concentration of these industries in urban portions of the state.

For purposes of analysis and reporting, but not sampling, the survey respondents were divided into seven geographic areas. (See Appendix C: Listing of Regions by County)

The regional distribution of survey respondents parallels the actual concentration of employers throughout the state. Metropolitan areas of Milwaukee, Racine, Kenosha, and the surrounding counties comprise a heavy concentration of Wisconsin's employers in the industries sampled. Northeastern Wisconsin, with its manufacturers in the Fox Valley and along the Lake Michigan shore are also key employment areas. Concentrations of employers in the southern and northwestern regions of the state largely reflect the impact of industry in the Madison and Janesville/Beloit area and in Eau Claire and the surrounding area.

Geographic Distribution of Employers
by Wisconsin Regions



1990 Gov. Commission Survey

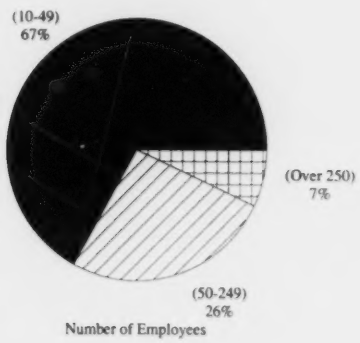
Chart 1

Number of Employees

Two-thirds of survey respondents were owners or managers of small firms with 10 to 49 employees. Respondents from mid-sized firms with 50 to 249 employees made up 26.4 percent of the total. Respondents from large firms with 250 or more employees made up the remaining 6.9 percent of all respondents.

The location of firms in urban or rural counties varied little by firm size. Respondents from mid-sized firms were slightly more likely (33%) to be in non-metropolitan settings than were larger (30%) or smaller firms (27%).

Wisconsin Employers by Size
Percent of Survey Respondents



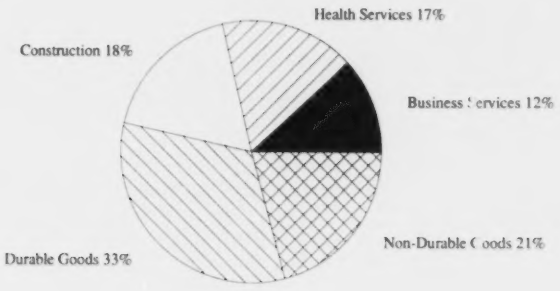
1990 Gov. Commission Survey

Chart 2

Line of Business

The five industries included in the survey are: business services, health services, construction, durable goods manufacturing, non-durable goods manufacturing.

Sectors of the Wisconsin Economy
Standard Industrial Classifications



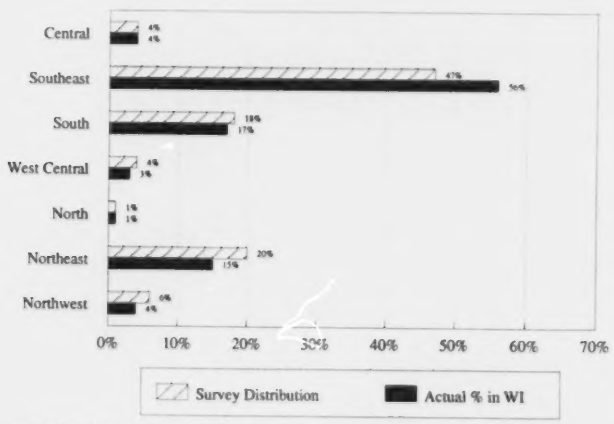
1990 Gov. Commission Survey

Chart 3

Business Services

The business services sector focuses on financial, information, and communications firms which may include insurance organizations and computer-oriented businesses. Survey respondents from this sector were dominantly smaller firms in urbanized areas (67%). Regionally, business service respondents came from the southeast (47%), northeast (20%), and south (18%).

Profile of Business Services
12% of Total Respondents



1990 Gov. Commission Survey

Chart 4

Health Services

Survey respondents in the health care service sector typically includes hospitals, clinics, and long-term care facilities in Wisconsin. Respondents included all sizes of employers. Most health service firms were small (89%) or mid-sized (11%). The few larger health service firms in the sample were all in urban areas. Regionally, health service firms are predominately found in population centers in southeastern, southern, and northeastern portions of the state.

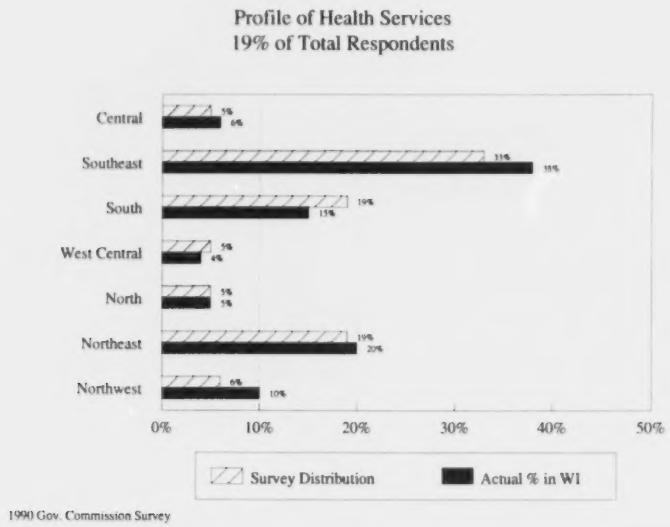


Chart 5

Construction

Construction firms constitute 17 percent of the total respondents. Most are found in urban settings (72%). Construction business is typically a small business with 89 percent employing 10 to 49 employees. Construction firms were somewhat more dispersed among regions of the state than were other respondents.

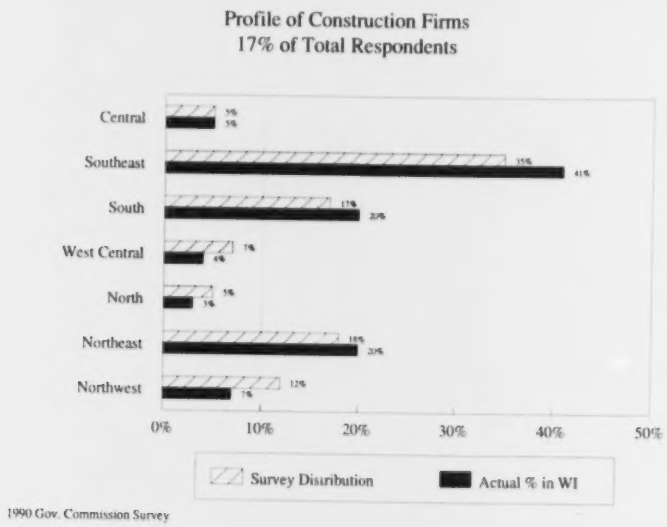
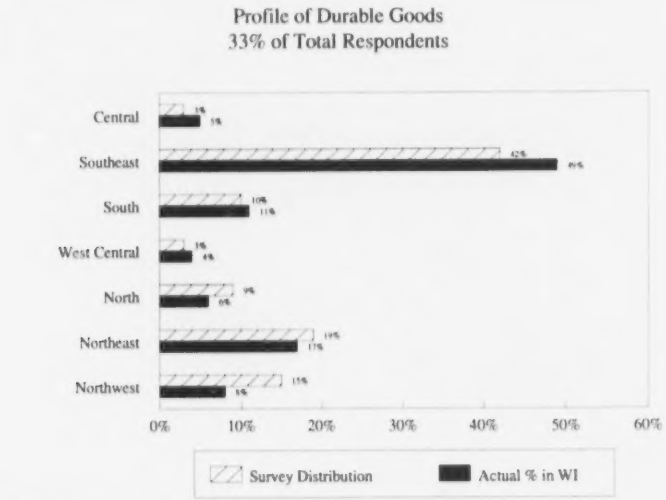


Chart 6

Durable Goods

Manufacturers of transportation products, machinery, and construction supplies are included in the durable goods industry. This is the largest sector of the Wisconsin economy sampled, with 32 percent of the employer respondents. The industrial areas of the southeast (42%) and northeast (19%) are well represented.



1990 Gov. Commission Survey

Chart 7

Non-Durable Goods

This sector is characterized by a wide variety of products of the more consumable nature such as agricultural, paper, and textiles. Small and mid-size firms are strongly represented in the survey with 59 percent and 32 percent of the durable goods sector, respectively. Large firms comprised 9 percent of employers in this sector. As a major industrial sector, employers represent the northeast (26%) with a likely emphasis from the paper industry concentrated in that region, and the southeast (31%) and southern (17%) regions.

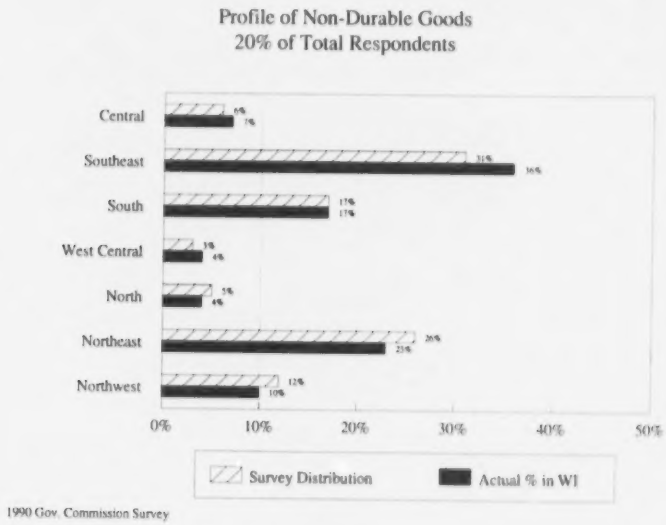


Chart 8

The Governor's Commission for a Quality Workforce set an objective for a survey that would accurately reflect the mix of employers throughout the regions of the state. Clearly, the objective was met. The survey results in the next chapter truly represent the voice of Wisconsin's employers. Observations and implications of the survey results are presented as "findings" throughout Chapter 2. This report concludes with a chapter entitled "Best Practice Firms vs. Average Performers" which analyses the characteristics of high performance organizations in Wisconsin. The actual survey form and data tabulations are included as Appendices A and B.

SURVEY RESULTS

2. Survey Results

A. The Available Supply of Skilled Workers in Wisconsin

The suggestion of a labor shortage perplexes some employers who have many job applications to choose from when filling any given position. But when the important ingredient of "skilled" worker is added to the equation, the picture takes on a new focus. Employers may differ in their job specific definition of a technically skilled worker but generally they agree that mastery of basic skills and workplace savvy are the bottom line for desirable attributes.

Do Wisconsin employers experience difficulty in locating qualified non-managerial workers? The resounding response is **YES.** For over 41 percent of employers, the task of hiring skilled workers is frequently a problem. Another 51 percent occasionally face the challenge of finding the skills needed in their workforce. Yet with this 92 percent of respondents validating a skilled labor dilemma in Wisconsin, 8 percent never have a problem. Most of these are small health service firms or larger non-durable goods industries in more rural areas. The problem is most evident for large business and health service firms in both urban and rural areas.

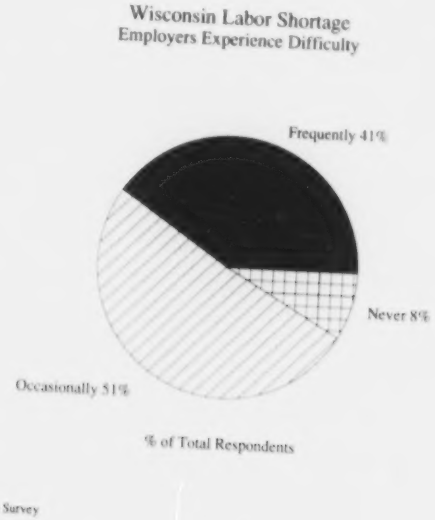


Chart 9

Over half of the large employers in all industries experience a problem to some degree throughout the state of Wisconsin.

Even with a difficulty finding needed skills, 62 percent of the employers surveyed increased their non-managerial workforce in the past five years. This hiring trend was common in all regions and all sectors of the economy. Expansion of small businesses in the southern half of the state contributed greatly to this trend. During the most recent economic

expansion from 1986 through 1990 Wisconsin's labor force increased by 9 percent to a record high of 2.6 million. The available workforce apparently met the demand for needed workers, but not necessarily at the skill level ultimately desired by employers.

Reasons for the Shortage of Skills

A declining supply of skilled workers is the most common reason given by employers of every size across the state for the current difficulty in filling labor needs. This shortage fosters a greater competition for workers as skill requirements continue to rise. Employers, especially small businesses, observe that this shortage is complicated by poor worker attitudes particularly manifested in the low value workers place on pursuing education to enhance skill levels.

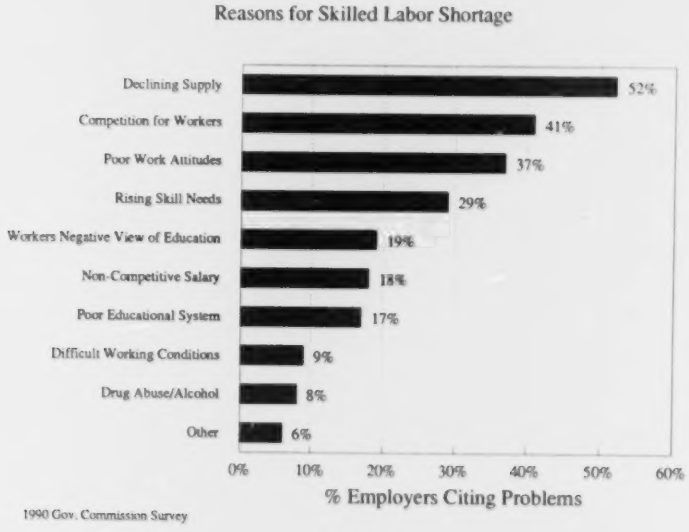


Chart 10

Skills Shortage Impacts Competitive Potential

The bottom line of a skilled labor shortage is how it impacts competitiveness. As growth and innovation are stifled by the lack of human capital to move enterprise forward, Wisconsin's economy feels the ultimate backlash in limited competitive potential. Seventeen percent (17%) of the respondents cite the lack of a skilled workforce as frequently preventing them from competing effectively, expanding, or entering new markets. Another 55 percent of employers noted that occasionally the lack of skills has hampered their competitiveness. Viewed as a combined economic impact, nearly three in every four respondents report being held back from higher performance and higher productivity due to skill levels.

Of equal interest are those employers who never connect lack of skills with competitiveness (chart 11). These firms tend to be smaller except in the case of the manufacturing sector where roughly one-third of all firms in both the durable and non-durable categories did not feel that skill level ever influences competitiveness.

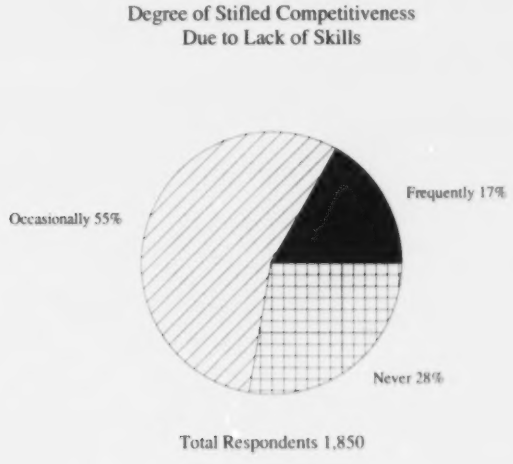


Chart 11

In the west central area of the state, employers seem to sense a high level of correlation between skill level and competitiveness. This area ranked highest in Wisconsin for recent investment in new technology and for citing highly flexible jobs as characterizing their non-managerial workforce. Employers in west central Wisconsin were least likely to say that they never had difficulty finding skilled non-managerial workers. Despite this factor, west central Wisconsin led the state in increasing its non-managerial workforce in the past five years.

West central Wisconsin evidences an economic sensitivity in the connection between skill levels and new technology in the workplace as a key indicator of competitiveness. It stands to reason that the leading edge organizations who advance through technological innovation will be most stifled by a skilled labor shortage in Wisconsin. There in lies the most critical message for all stakeholders concerned with economic development in Wisconsin. Serious study needs to be focused toward those employers who experience skills inadequacy as the red flag of the enterprising pioneers who are struggling to build Wisconsin's economic future.

B. Assessment of Non-Managerial Skill Levels

Overall, employers rate workers more highly in areas reflecting motivation and interpersonal skills such as ability to work with others, work ethic, and ability to follow directions. For skills more closely related to formal education, however, nearly 25 percent of employers register a severe deficiency among their workforce. These applied academic skills include general reading, reading manuals, writing, addition and subtraction, and using fractions. Considering the importance of these fundamental skills, it is particularly

significant that 8 percent report that these employees are poor or very poor at general reading, 25 percent in technical reading, 31 percent in writing, 12 percent in addition and subtraction, 31 percent in using fractions, and 47 percent in algebra (chart 12).

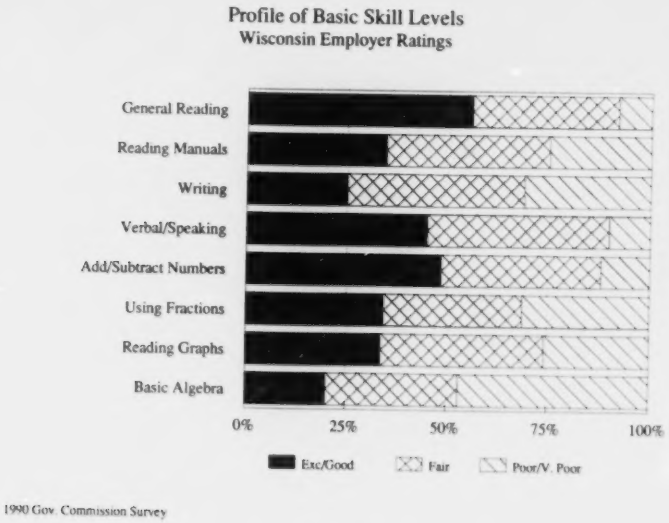


Chart 12

Smaller firms tend to rate their employees higher in the basic skills while medium size firms rated these skill levels comparatively lower than larger or smaller firms. Medium-size firms reflected a more favorable view of the more technical/high order skills while interpersonal skills were rated higher by smaller firms. The message from larger Wisconsin firms was one of consistently lower rating for their workforce in all skill categories.

Findings:

- A skilled labor shortage presents difficulty for 92 percent of employers.
- Declining skilled worker supply stifles productivity for a major portion of firms (73%).
- Employers rate nearly 25 percent of the workforce deficient in basic skills with especially poor ratings (25% +) for writing, using fractions, and algebra.

Profile of Skill Levels by Industry Sector

Business Services

Business Service Sector	Basic Skills	Analytical/Interp. Skills	Composite Average
Exc./Good	34.4	40.8	37.6%
Fair	40.7	39.8	40.3%
Poor/Very Poor	24.9	19.4	22.1%

Smaller firms dominated the excellent/good ratings over medium to large business firms in most basic skill categories. Medium-size businesses rated their workforce slightly higher

in reading technical manuals and algebra. The commentary on skill levels in large firms is bleak. Basic skills received an overall rating of 45 percent poor to very poor with algebra (73% poor/very poor) and fractions (69% poor/very poor) leading the deficit list. Interpersonal/analytical skills faired slightly better in comparison to basic skills in poor/very poor rating for large business service firms with low ratings of their workforce in analytical abilities (50% poor/very poor) and leadership (47% poor/very poor). An interesting note is that the work ethic category among large business services received the lowest rating (43% poor/very poor) compared to all other sectors or sizes of firms.

Respondents were typically small, urban firms in the southeast region.

Finding: Large business service firms such as those linked to finances, communications, and computers register low ratings for key technical and personal skills which are characteristic to successful business firms.

Health Services

Health Service Sector	Basic Skills	Analytical/Interp. Skills	Composite Average
Exc./Good	56.5	56.5	56.5%
Fair	32.3	33.0	32.6%
Poor/Very Poor	11.2	10.5	10.9%

High ratings characterize the skills of the non-managerial workforce in the health services sector with well over half the ratings for all skills in the excellent/good category (56.5%). Small health service employers led both basic and interpersonal skill areas with a 90.8 percent excellent/good rating in reading. Very high scores were noted for the workforce in large health service firms for the interpersonal skills of working with others (84% excellent/good) and following directions (81% excellent/good) which are understandably critical skills in quality health care. Medium-size health service employers dominated the low end of the rating scale in both basic and analytical/interpersonal skills. The lowest skill levels were recorded for algebra (42% poor/very poor) and general computer skills (35% poor/very poor) in mid-size health service firms. The non-managerial workforce skills in the health service sector were rated highest compared to all other sectors. Survey respondents in this sector were typically mid-size firms in the southeast region with a comparatively high representation among west central firms.

Finding: Wisconsin health service industries indicate high skill performance in their workforce to deliver top quality health care.

Construction

Construction Sector	Basic Skills	Analytical/Interp. Skills	Composite Average
Exc./Good	36.3	42.7	39.5%
Fair	37.8	36.6	37.2%
Poor/Very Poor	25.9	20.7	23.3%

Skill levels were rated quite consistently in all sizes of construction firms for both basic and analytical/interpersonal skills. Only four firms represented large construction firms in the survey which is a small group but indicative of the size of firm in this industrial sector in

Wisconsin. Reading (53% excellent/good) was the highest rated basic skill across all sizes of construction firms. Lowest rating was scored for basic algebra (51% poor/very poor) but only for small to mid-size employers. Large employers registered a relatively high rating for basic algebra (33% excellent/good). Mid-size construction firms tended to rate the analytical/interpersonal skills of their workforce higher than small and large firms with a 71 percent excellent/good score for ability to work with others followed with a 68 percent excellent/good rating for work ethic. Poorer performance was more likely to be evident in small firms particularly in general computer skills (54% poor/very poor). The construction sector typifies the average profile of skill levels in Wisconsin with stronger primary basic and interpersonal skills and more serious problems in the technical areas. Respondents were typically from small rural firms or mid-size urban firms equally distributed across the state.

Finding: Construction firms depend on traditional Wisconsin hallmarks of primary basics and work ethic skills while seeking more technical skill expertise among their workers.

Durable Goods

Durable Goods Sector	Basic Skills	Analytical/Interp. Skills	Composite Average
Exc./Good	32.3	40.0	36.2%
Fair	41.9	39.5	40.7%
Poor/Very Poor	25.8	20.5	23.1%

The skills assessment of the durable manufacturing industry was mixed according to size of firms with smaller firms tending to be more positive regarding skill levels. Large firms, however, registered the highest basic skill report in single categories with reading (51%) and adding/subtraction (51%) rated excellent/good. The lowest basic skill rating was algebra (47% poor/very poor) with large firms most dissatisfied at 56 percent poor/very poor.

Interpersonal/analytical skills were viewed as quite high overall in the durable goods sector with large firms tending to be comparatively more positive about their non-managerial workforce. Excellent/good ratings were particularly strong for large firms in the interpersonal skill areas of working with others (70%), following directions (70%), and work ethic (66%). Analytical skills notably in the area of computers (48% poor/very poor) received the most negative report. Mid-size employers tended to rate interpersonal/analytical skills lower than other size firms. Overall, skill levels of this significant industrial sector were on the lower end of the scale for the non-managerial workforce. This sector had the highest representation (28%) among the survey respondents with more large, urban employers from the southern region of the state in actual numbers. Small, rural firms in the north and northwest region were also comparatively well represented for this sector.

Finding: Large manufacturers place high value on the exemplary work attitude and team spirit of Wisconsin workers but desire similar excellence in high order technical and analytical skills.

Non-Durable Goods

Non-Durable Goods Sector	Basic Skills	Analytical/Interp. Skills	Composite Average
Exc./Good	31.8	42.2	37.0%
Fair	40.3	36.0	38.2%
Poor/Very Poor	27.9	21.8	24.8%

Workforce skill level in the non-durable manufacturing sector received the lowest assessment by employers of all Wisconsin industrial sectors. Basic skill levels represent the weakest area with a 28 percent poor/very poor rating overall. Small firms, interestingly, dominated both the positive and negative rating with large firms giving the highest marks to their workforce in reading (55%). Similar to all other sectors, algebra received the lowest rating of 59 percent poor/very poor with an astounding 64 percent poor/very poor score given by mid-size non-durable goods firms.

Analytical/interpersonal skills fared comparatively better in this sector. Small firms had more positive ratings for analytical skills while large firms had stronger criticism in this area particularly for computer literacy (47% poor/very poor) and critical thinking (31% poor/very poor). Interpersonal skills were rated quite high across all sizes of firms with excellent/good scores for working with others (69%), work ethic (58%), and following directions (57%). Respondents in this sector were characteristically small to mid-size firms in the rural northeast and central regions of Wisconsin.

Finding: There is a mismatch between the unskilled portion of the workforce and the growing high skill demands of non-durable goods manufacturers.

Formal Skill Assessment Practices of Employers

Most Wisconsin employers surveyed do not conduct basic competency testing of their workforce. Many voice opposition to the practice of competency testing. Employers rely on educational levels as indicated on job applications and the job interview itself to reflect the competency level of potential employees. Skill testing that is conducted generally relates to clerical skills (i.e., typing) and some firms work with technical colleges to test job applicants.

Skill levels of the existing workforce are usually not formally tested but part of the periodic personnel evaluations conducted by many employers. This method of skill assessment leads to the development of training plans for 55 percent of employers. These plans or other measures are used by 65 percent to predict future skill needs. Employers appear to be managing the business of projecting skill levels to the best of their ability but recognize some shortcomings in their current methods. It is interesting to note that nearly 90 percent of those surveyed would work with technical colleges in the development of training plans based on projected skill needs.

Current Activities to Meet Non-Managerial Skill Needs

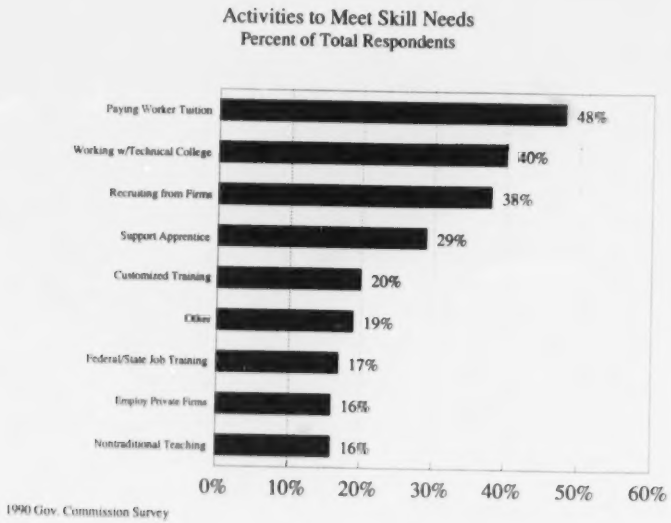


Chart 13

Current activities among Wisconsin employers to enhance skill levels revolve around supporting tuition costs apparently for technical college courses. Slightly over one-third of the employer activity is of this nature for all sizes of firms. Most industrial sectors cite payment of tuition as a leading activity. However, the construction sector had significantly more involvement in supporting apprenticeships (26%) while the business service sector was more likely to be recruiting workers from other firms (19%) as the primary effort to meet skill needs, particularly among mid-size business service firms (23%). Large health care organizations and small firms in construction, durable, and non-durable goods sectors had significant activity in recruitment of workers from other firms.

According to the telephone survey, employers have engaged in a variety of strategies to combat the skilled labor shortage situation. Many emphasize on-the-job training to a greater degree as a strategy for creating the skills they need in the workplace. Some employers rely more heavily on recruiters and temporary agencies than they may have in the past. Technical colleges have also been a resource for training and to fill personnel needs for 40 percent of the respondents.

The employer investment in human capital is not at a level sufficient to produce the high performance and high skills demanded in a globally competitive economy. This complacent behavior fosters a vicious cycle of skills shortages, stifled innovation, and unrealized efficiency. Since the status quo is adequately comfortable and today's economic report for Wisconsin is relatively strong, it appears that many Wisconsin employers have nestled into an attitude of "if it ain't broke, don't fix it." Obviously, more is "broke" in terms of skill levels than was collectively realized up to this point in time. This factor may only be broadly understood as traditional options to fill skill needs, like recruitment from others, fail to be effective. Unfortunately, the time lost in this realization process makes it more difficult to "fix" skill levels that are now only average and need to be higher, much higher in some cases, to keep Wisconsin's economy strong.

Employer Track Record in Training Non-Managerial Workers

Time Involvement

Including on-the-job training, most new non-managerial workers in the industries surveyed receive little more than two weeks of training time in their first year on the job. The amount of training time varies by type of jobs and size of firm. Mid-sized, larger firms tend to provide a bit more training compared to smaller firms.

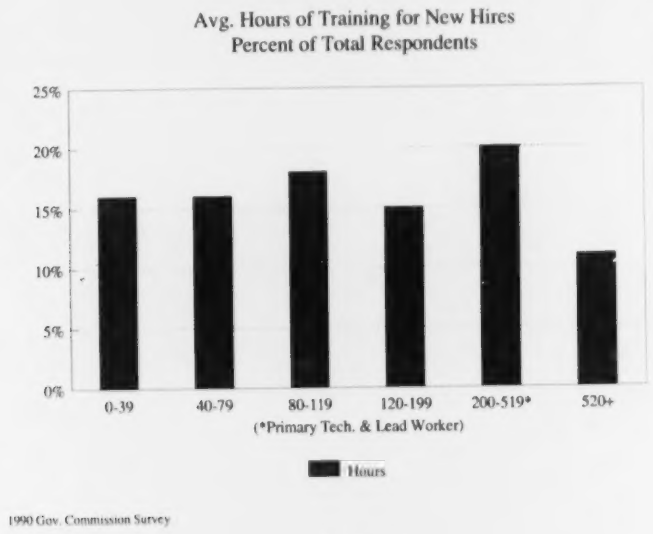


Chart 14

Technical workers and lead workers tend to receive more training. Over one-third of the technical workers and 44 percent of lead workers received over 200 hours of training as a new hire.

Employer Investment

The majority of employers reported investing less than $1000 per worker on training in 1989. Firms with fewer employees tend to spend more per employee than larger firms.

Chart 15

Most of the investment employers make in their workers is not directed toward the training of non-managerial workers in basic skills such as math and reading. Nearly three-quarters of the employers had not spent any training dollars on basic skills. Of those employers providing basic skills training, construction firms and smaller employers in all sectors were most likely to be spending training dollars on remedial activity. Regionally, south and southeastern Wisconsin employers tended to be more likely to make some investment in basic skills training for their non-managerial workforce.

A logical conclusion is that most purchased training is job specific. In addition, basic skills training may be available at no charge to employers or employees through Wisconsin's technical colleges. On-site workplace literacy programs are a relatively recent development that have not been widely adopted. Roughly 30 percent of the labor force nationally has basic skills needs which often do not become apparent until participation in more technical skill training is required. This benchmark accurately reflects the basic skill level deficit reported in the survey, but training investment for basic skill development has not corresponded to the needs of Wisconsin's workforce. More involvement in skills training overall would likely increase the demand for basic skills remediation. More specific information on both workforce assessment procedures for competency and involvement with workplace literacy training is necessary to clarify this point.

Barriers To Pursuing Training

The greatest barriers to training appear to be the time and money factors. For most employers, time is a factor because they need the training immediately. To that end, when a skill need becomes evident as a problem it is almost too late to pursue training. The

financial impediments are very real for many employers, especially the cost of having people in training and not at work.

The lack of motivation on the part of employees to attend training is frequently a barrier for those employers willing to invest the necessary time and money in training. As one employer stated, "you can lead a horse to water but you can't make him drink." In essence, employers can make training opportunities available but cannot force people to participate if they don't feel they need it. For some employers, the absence of front-end trainable people is a problem. Again, the skill level of the workforce prevents needed upgrading to occur.

The shortage environment has also brought out the "pirate" in Wisconsin employers. Recruitment of skilled workers from other firms is a commonly cited practice as well as a barrier. Some employers are hesitant to invest training dollars in their workforce simply to have skilled workers "poached" by competitors who may simply beef-up wages in lieu of providing skills upgrading.

The issue of barriers certainly appears to encompass the crux of the challenge in addressing the skill shortage in Wisconsin. Obviously, the desired turnaround in employers behavior related to skills upgrading and training will not take place without addressing these barriers. It may be that time and money would be less of a problem for some employers if Wisconsin policy makers could impact recruitment practices and the level of motivation among employees. Although money is noted as a barrier, 76 percent of the firms surveyed finance employee training. Further study on the exact nature of future policy initiatives is required to effectively address this problem.

Findings:

- Few employers have formally assessed the skill levels of their workforce and most are looking for new methods to predict skill needs.
- Over one-third of employers try to fill their skill needs by recruiting workers from other firms, a practice that will be more difficult to continue in the workplace of the future.
- Overall, employer training investment in real time and dollars of their non-managerial workers is low.
- A shortage of front-end trainable workers is a major problem for employers.
- Employers cite insufficient time and money as the critical barriers to training their non-managerial workforce, particularly for small business.

C. Trends in Organizational Change Impact Training Needs

Innovation in Wisconsin

Over the past seven years, Wisconsin organizations who experience change were most likely to experience traditional developmental change like new production processes or new product lines. Productivity enhancements were largely of the entrepreneurial variety not necessarily focused on changing the basic organization of work. West central Wisconsin

employers recorded a 21 percent involvement with new quality systems which led all other activities in all other regions of the state. Smaller companies led involvement in traditional activity while larger firms noted a trend toward new methods to increase productivity. Because of these changes, skill levels increased for the vast majority of non-managerial workers especially for foreman/lead workers in the durable manufacturing sector and business services particularly for large firms.

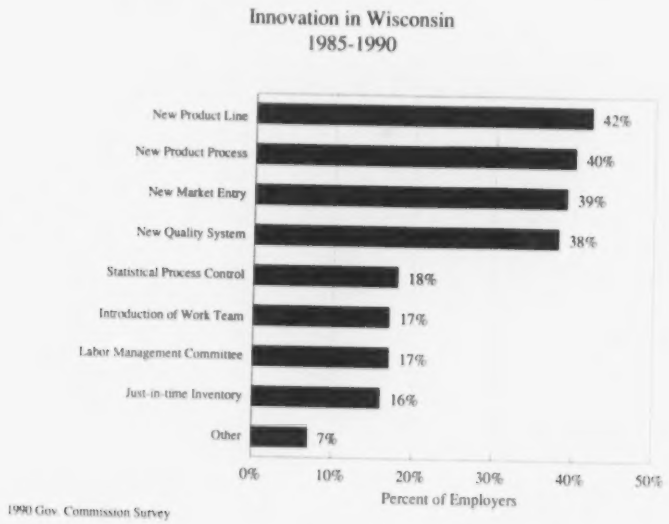


Chart 16

Involvement in multiple areas of innovation was dominant among employers who have increased the number of skilled employees in the past five years and plan to increase their workforce in the future. However, employers whose workforce has not grown or decreased in size tend to depend on nontraditional innovation, such as quality systems, to enhance productivity. Employers involved with more organizational innovations tended to characterize their non-managerial jobs as intermediate with a mix of routine and flexible functions.

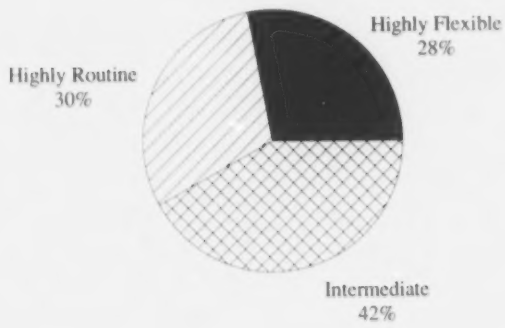
New Technology Impacts Wisconsin's Workforce

Since 1983, the vast majority of Wisconsin's employers (70%) have invested in new technology in their work place. Although most regions were close to having slightly over two-thirds of their employers recording investment in new technology, west central firms led the state with technology related investment (73%) while northern Wisconsin firms had the least investment (66%). Large firms are more likely to invest in technology especially those in the non-durable manufacturing sector (91%) and durable goods (88%). Overall, the least significant investment in technology was in Wisconsin's construction firms (62%) particularly among smaller companies (60%).

Increased skill levels and increases in the workforce corresponded with this investment in new technology particularly for technical workers, foreman/lead workers, and clerical workers across the state but notably in central Wisconsin. Large firms in the durable and non-durable sector had the greatest increase in skill needs for their workers due to new technology. New technology in small business influenced a strong increase in skill level.

Employers with more flexible jobs demonstrated a strong investment in technology (76%) with the less investment (60%) by employers with routine non-managerial jobs (chart 17). Firms who plan on expanding their workforce in the next five years are most likely (75%) to have a significant investment in technology.

Nature of Most Non-Managerial Jobs
Percent of Survey Respondents



1990 Gov. Commission Survey

Chart 17

Across Wisconsin there is a strong linkage among organizations involved with multiple innovations in the recent past and investment in new technology. Eighty-four percent (84%) of employers in all sectors with simultaneous activity in new markets, new quality systems, new production processes, and new product lines are heavily technology oriented. High innovation levels are evident among large durable good manufacturers who correspondingly have an extremely high track record (91%) in new technology investment.

For the 30 percent of firms who did not invest in new technology, demands to increase the skill levels or numbers of non-managerial workers were not as apparent. Smaller firms in the construction and business service sector made up a significant proportion of employers with less involvement with new technology as did employers with more highly routine non-managerial positions. However, lack of investment in new technology did not preclude involvement with organizational innovation. For example, business and health service firms who were not technology oriented were active in new quality systems and new markets. Similarly, innovations in the traditional areas of new product development and new production processes was noted for the durable and non-durable goods industry. This observation may indicate that some Wisconsin employers have had to make a choice in targeting investments either toward new technology or other organizational innovations. The specific nature of the individual enterprise would obviously dictate the direction of resource concentration.

Skill Projection Uncertainty

Although workplace innovation and new technology have increased the skill requirements of non-managerial workers in the past seven years, a significant number of survey respondents had difficulty assessing skill level changes. Roughly one-third of the

employers were hesitant to estimate the impact of skill levels due to innovations. Moreover, uncertainty in judging the impact of new technology on skill levels caused close to half (47%) of the employers to withhold responses. Obviously, skill impact assessment is not a routine employer activity which means data is not collectively available to reliably analyze existing skill levels or projected skill needs. As a result, employers choose to acknowledge their lack of ability to assess skill levels rather than risk conjecture.

This factor provides important insights for Wisconsin policy makers who often presume that employers have a solid handle on their workforce skill levels and are the best predictors of skill needs. Employers evidently need more technical assistance in accurately assessing skill levels in their workforce when innovation and new technology change the workplace.

D. Technical Skills in Wisconsin High Schools and Technical Colleges

Wisconsin employers expect high schools to concentrate on the development of math, statistics, and general computer skills to effectively develop the workforce of the future. High expectations for emphasis on the development of math and statistic skills in secondary schools were evident throughout the state. Similarly, the industrial sectors of construction, durable and non-durable goods held math and statistics as a top skill priority. The business and health service sectors favored general computer skills as most significant for their future workforce. Additionally, reading and writing skills were among the top skill priorities for employers in all regions.

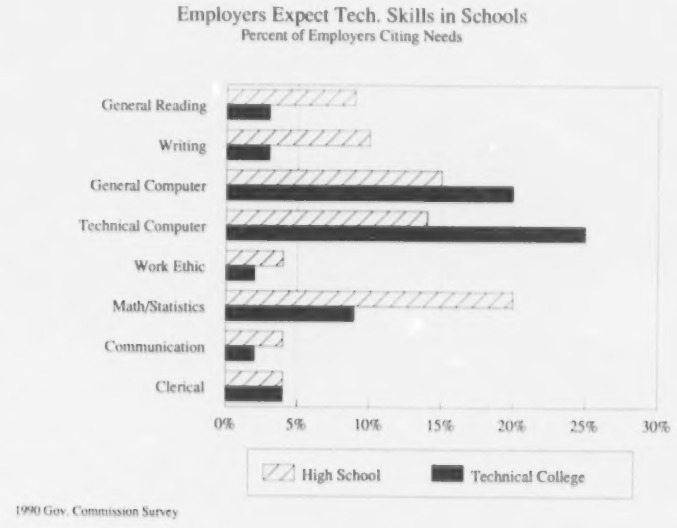


Chart 18

Technical colleges are expected to deliver the skills development training which the name suggests--technical--as a vehicle for fine tuning and applying the basic skills, notably math and statistics, to occupational training. Accordingly, employers in the north and northwestern regions of the state have very high expectations for this kind of technical education. General computer skills also are a top priority for technical college students particularly in the central and northern regions of the state.

Wisconsin Employers Rank Priorities

Wisconsin employers believe that improving basic reading, communication, and math skills is a fundamental priority of the elementary and secondary school system. This foundation needs to be further supported by strengthened basic skills training in technical colleges. Additionally, technical skills in the college classroom need to be closely linked with the workplace where application facilitates competency.

Priorities for improving job specific skills for Wisconsin's workforce reflect the above stated importance of building a strong foundation for technical skill development by expanding and restructuring vocational programs in Wisconsin high schools. Coordination between the technical college and the workplace is viewed as a priority for Wisconsin employers to clearly escalate the impact of education on productivity. More occupations, it is believed, could benefit from apprenticeship programs while expanded technical training is viewed a critical element for the state's economic future.

Priorities to Improve Job-Specific Skills

1. Expand vocational programs in high schools
2. Expand/improve technical training
3. Coordination between technical colleges and workplace
4. Expand apprenticeships to more occupations

E. Expansion of Partnerships

Most Wisconsin employers (57%) report some kind of involvement with publicly-supported employment and training programs and organizations in the state in the last five years. Topping the list of activities were donations to educational organizations. Respondents were next most likely to report participation on technical college advisory groups, involvement with community-based organization job trained programs, and involvement in elementary/secondary school advisory groups.

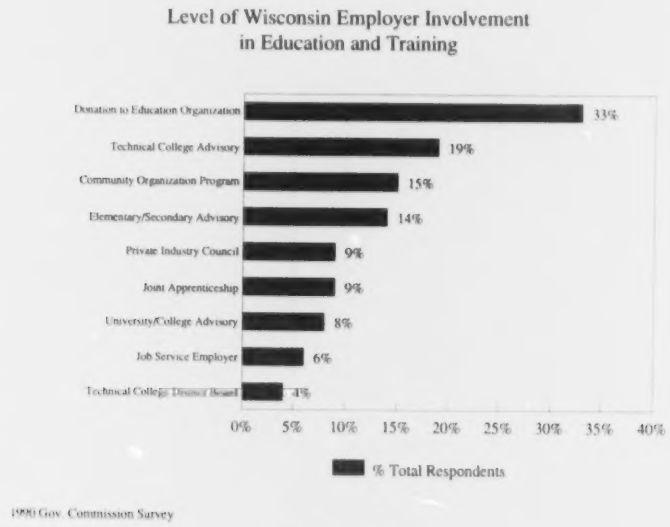


Chart 19

The extent of involvement in specific kinds of activities and programs depends largely on a firm's line of business. Respondents from construction firms were more likely than others to report involvement with apprenticeship programs, for example. Overall, respondents from business services firms were least likely (49%) to report any involvement while those from construction firms were most likely (57%).

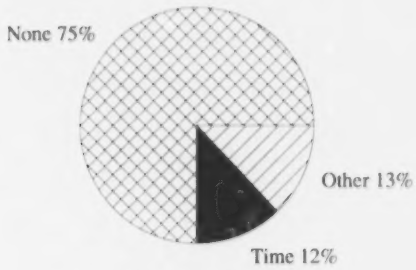
When asked specifically about involvement with technical colleges, respondents were more likely to report some kind of involvement than they were for other kinds of employment and training programs. Nearly three in every four respondents (73%) reported some contact with technical colleges in the last five years.

Primary areas of employer involvement with technical colleges include:

- Employing technical college graduates (60%)
- Sending employees to technical college (51%)
- Contracting for in-house training (20%)
- Serving on advisory committees (19%)
- Serving on technical college boards (4%)

Most employers do not perceive specific barriers to greater involvement with education and training organizations. Three out of four respondents report no barriers at all. Another 12 percent claim that only time prevents their greater involvement with education and training organizations.

Employer/Education Partnerships
Few Impediments to Involvement



Percent of Total Respondents

1990 Gov. Commission Survey

Chart 20

F. Employers Focus on Wisconsin's Technical Colleges

Most Wisconsin employers responded favorably when queried about their satisfaction with technical colleges in the past five years. The majority of those expressing an opinion were pleased with the quality of the technical training (87.4% satisfied/very satisfied), the quality of technical college graduates (85.1% very satisfied/satisfied), the flexibility of the colleges in providing training (68.6% very satisfied/satisfied), and the appropriateness the technical college training (67.8% very satisfied/satisfied). These factors were consistently rated highest by larger firms in all five sectors of the economy surveyed by the Commission.

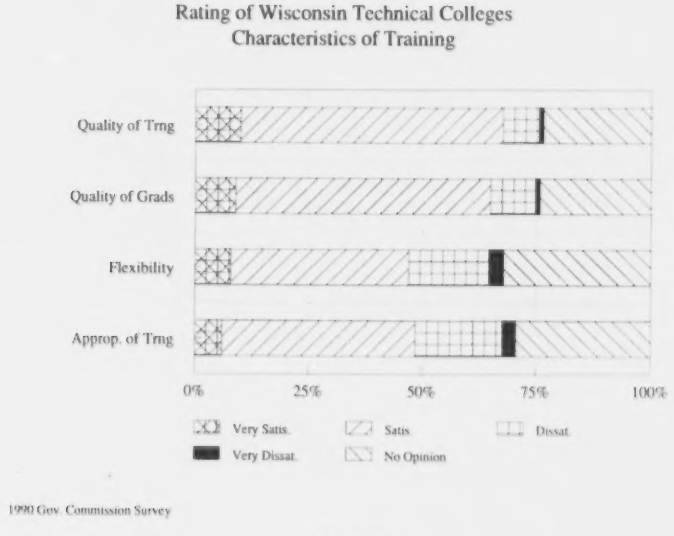


Chart 21

Although most employers rated the technical colleges positively, the survey responses indicate that there is considerable room for improvement on the part of technical colleges in meeting the needs of employers in the state.

First, employers' responses to the survey indicate that technical colleges need to address issues of flexibility and appropriateness of the training provided. While technical colleges probably cannot meet the needs of every employer in their district, the data indicate relatively high levels of dissatisfaction with regard to flexibility and appropriateness of training that must be addressed if education/business partnerships are to flourish.

Second, although technical colleges appear to be doing a good job in meeting the needs of larger firms in the state, survey respondents from smaller firms are two to three times more likely to report dissatisfaction with technical colleges on all four factors than are larger firms. Reports of dissatisfaction fall as firm size increases, suggesting that technical colleges find it easier to meet the needs of firms with more employees than those with few. These data suggest that improving operations for technical colleges will mean improving accessibility, flexibility, and input in training design for small and medium-sized firms while maintaining or improving existing services for larger firms.

Findings:

- New technology, new quality systems, team management, and continuous improvement are growing trends.
- Many employers find it difficult to comment on the skill level influences caused by changes in new technology and other innovations in the workplace.
- Three in every four employers cite no barriers to developing more meaningful partnerships with education and training organizations.
- High overall ratings of satisfaction with technical colleges by employers mask problems with regard to the flexibility and appropriateness of technical college training and with the ability of technical colleges to meet the needs of smaller firms.

G. Future Plans and Resources for Training

Sophisticated technology and computers will dominate the workplace of the future according to Wisconsin employers. The majority of non-managerial workers, not just technicians or lead workers, will need to have a working proficiency of the basic tools of the technology-oriented workplace. Correlated with this projection is a strong emphasis on the math and statistical skills. Employers in west central, northeast, and central Wisconsin in particular highlighted this need.

With the growing older population, many employers are sensitive to the future needs for workers with high skills in the health science area. The increasing importance for high quality health care available throughout Wisconsin was evident in this significant projection of skill needs across the State.

Respondents in specific sectors of the Wisconsin economy predict additional skill areas for the future. Clerical skills will be valuable in the future especially in small health service organizations and large business service firms. The future need for greater leadership ability was interesting to observe among smaller size construction firms which may indicate a change in the nature of construction jobs.

The importance of basic skills including reading, writing, and computation abilities is indicated as a bottom line foundation to the more technical jobs in the future. Employers who are looking forward know that they need a future workforce which can learn, continuously, in the workplace. Workers will encounter more applications of their baseline skills to technical needs of an ever changing work environment. Wisconsin employers are sending a strong message to both educators and workers that working knowledge of basic and more technical skills coupled with the ability to learn and work well with others are key ingredients to productivity and Wisconsin's future.

According to the telephone survey, 45 percent of employers predict a high likelihood of seeking technical training for their workforce in the near future. Another 32 percent believed that there was some likelihood of seeking technical training in the future. Most of the employers surveyed (68%) have received skills training from Wisconsin's technical colleges in the past, but nearly one-third (32%) had not.

Technical colleges frequently are contacted first when Wisconsin employers need special skills training for their employees (42%). Some companies rely on private trainers (16%) with whom a good working relationship has been developed. Over one-third (37%) rely on a mixture of training resources including in-house trainers and associations. The University of Wisconsin System is the first training contact for about 5 percent of those surveyed.

Finding:	Continuous learning is an integral part of the future workplace with technical colleges predicted as a key training resource for employers.

H. Concluding Employer Comments

Many employers applauded the work ethic common to older skilled workers in Wisconsin's workforce. There is a major concern about passing this work ethic along to the younger generation who often "don't take pride in their work."

Basic skills among workers are surfacing as more problematic for employers in addition to technical skills. High schools are consistently identified as the place for more concentrated effort to avoid the "declining skills capability many are experiencing now in the adult population." Employers underscore the fact that technical education should not be considered second rate, but vital preparation for future participation in the workforce.

Although some employers feel Wisconsin is far ahead of other states, many observe that we need to improve to compete with workers in Europe and Asia. One employer noted: "People don't realize that the problem of lack of a skilled workforce is holding Wisconsin back."

BEST PRACTICE FIRMS

3. Best Practice Firms: Skill Needs and Training

Employers across Wisconsin are changing the way they do business. A sizable group, about 20 percent of those responding to the Commission's survey, are what we call "best practice" firms. Managers in these firms report making a number of significant changes in their operations. Responding to new standards of competition, these employers are not only making greater use of new technology and expanding their operations, but also adopting new management practices. These include: introducing work teams; establishing labor-management councils; and adopting new quality systems or quality improvement processes. Best practice firms in Wisconsin can be found in all five industrial sectors surveyed by the Commission. Best practices are also reported by firms ranging in size from fewer than 50 employees to more than 250. Medium to large sized manufacturers are most likely to fall in the best practice group; smaller health services and construction firms, the least likely.

Definition of "Best Practice" Firms

Companies and organizations who are at the cutting edge of initiating new measures to advance competitiveness and productivity. Characteristics of best practice firms include:

- Integration of new technology
- Introduction of work teams
- Establishment of quality improvement processes
- Involvement with multiple product and service innovations
- Commitment to workforce skills development
- Establishment of labor-management councils
- Expansion of company operations

Best practice firms in Wisconsin seek highly skilled workers and frequently have problems finding the needed skills. Although this difficulty is mirrored by most other firms, best practice firms can more clearly articulate the reasons for the shortage. For these firms, the declining supply, heightened competition for workers and rising skill needs are a stark reality. They are also more likely to identify the less obvious dimensions of the problem: poor work attitudes coupled with workers placing a low value on education (see Chart 22). These statistics suggest that as firms try to correct the skill shortage within their workforce by providing training, they frequently are faced with the perplexing obstacle of worker attitude. In a labor shortage situation, this obstacle cannot be skirted by finding different workers.

Chart 22

Rating Basic Skills

The report card on basic skills of the workforce is lower for best practice firms than other Wisconsin employers. While 21 percent of the average performers rated their workforce poor to very poor in basic skills, 29 percent of best practice firms had low ratings for their workers. Problematic areas with poor/very poor ratings included: algebra (55%); fractions (35%); writing (40%); reading manuals (32%); and graphs (28%). Not even one-third (31%) of the best practice employers could rate their workers excellent to good in basic skills. Fair ratings were registered by 40 percent of the best practice employers (see Charts 23 and 24).

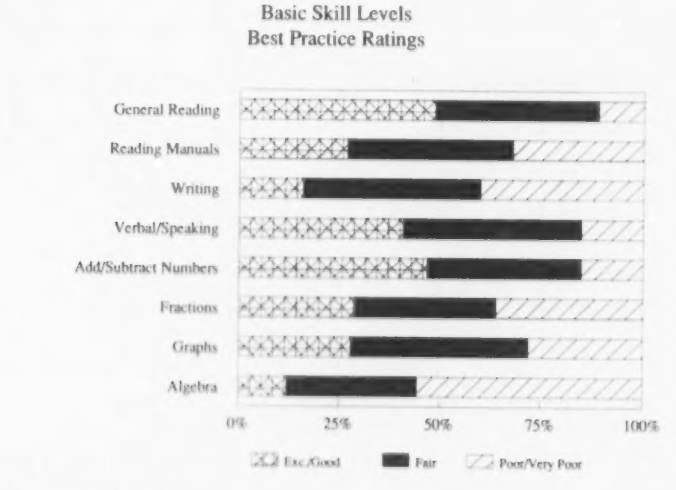


Chart 23

These statistics tell us that when best practice firms attempt to provide training to upgrade skills, they are hit head-on with basic skills deficiencies in their workforce. Subsequently, these firms need to spend a greater share of their training dollars in strengthening the basic skill level of their front-line workers. On the other hand, average performers who are less involved with skill upgrading have not yet realized the poor level of basic skills among their workers. As skill needs continue to rise in the future, this problem is likely to mushroom for many Wisconsin employers who want to compete in a global economy.

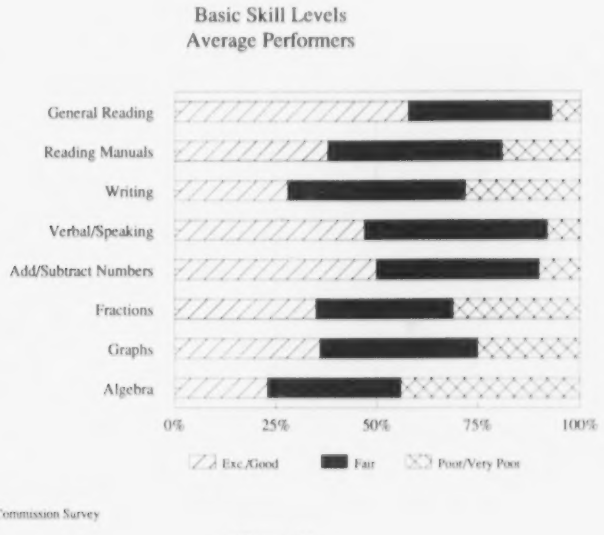


Chart 24

Rating Analytical/Interpersonal Skills

Compared to basic skills, best practice firms as well as average performers rated people skills and work ethic higher for their workforce. However, best practice employers were not as enthusiastic as others when rating the more analytical areas. General computer skills received poor to very poor ratings from 46 percent of best practice employers. Weak leadership skills (fair to very poor ratings) were noted by 80 percent of the best practice firms.

The message from the cutting edge companies is that as the workplace changes and new ways to organize work are introduced, analytical and interpersonal skills are critical to organizational effectiveness. Performance that has not been heretofore expected of front-line workers is becoming the status quo throughout the organization. Although training can refine these high order skills among workers, it must be accompanied by an overall corporate culture commitment to the new organization of work demonstrated by top management and visibly valued among all employees.

Involvement with Education and Training

Greater demand to increase skill levels for best practice firms has created more likelihood of involvement in training and related expenditures compared to other employers in Wisconsin. Since best practice firms, by definition, are more likely to report technological change and

innovation in the workplace, increased skill needs have corresponded. Best practice firms report a higher rate of involvement with training related activities to meet non-managerial skill needs. They also participate in non-training related activity, such as recruiting workers from others (52%), to meet needs. The only activity which does not outpace average performers is the incidence of involvement with apprenticeship programs.

	Best Practice	Average Performers
• Pay worker tuition	64%	44%
• Work with Technical College	54%	36%
• Recruit workers from others	52%	34%
• Seek customized training	34%	16%
• Non-tradition teaching	29%	13%
• Employ private trainers	26%	13%
• Support apprenticeship	26%	30%
• Federal/State training	23%	15%
• Other	11%	8%

Similar patterns are demonstrated related to best practice firms' affiliation with education and training organizations. Involvement is more likely on school and college advisory committees, community job training organizations and in making donations to educational institutions.

	Best Practice	Average Performers
• Donations to education	40%	31%
• Represent on Tech College Committee	30%	3%
• School Advisory Committee	23%	12%
• Community Job Training rep.	23%	13%
• Univ./College Advisory Committee	15%	6%
• Private Industry Council	12%	6%
• Representative on Tech College Board	6%	3%
• Job Service Employers	9%	5%

Rating of Technical Colleges

Best practice firms are more familiar with the services of technical colleges, primarily because of their track record in providing training for their workforce. They are quite pleased with the quality of training (75% satisfied/very satisfied) and the quality of graduates (72% satisfied/very satisfied). Although over half are satisfied with the flexibility and appropriateness of courses, over a quarter of the best practice firms are dissatisfied with these features and are looking for improvements. This message is important when considering that best practice firms are not only the technical college's key customers, but also those who have a good handle on their future service needs.

Comparatively, average performers' rating of technical college, though favorable overall, was skewed by the high percentage of employers who gave no opinion. This presumably is due to their lack of exposure to training provided by the technical college. It also appears that the significance of flexibility and appropriateness of training has yet to achieve a high degree of importance for average performers compared to best practice firms. Technical colleges would be well-advised not only to respond to the needs of best practice firms, but to anticipate a growing demand from the "converted" average performers as well. In another sense, technical

colleges are viewed as the ideal agent to influence and expedite the enlightenment of average performers.

Concluding Remarks

More firms in the future will have few alternatives but to adopt "best practice" characteristics to remain competitive in a global economy. Wisconsin employers can learn a great deal from their colleagues who are committed to excellence and have made the necessary efforts to position their companies for success. Their experience has merit as a critical dimension of Wisconsin's economic development strategy. The best part is that this valuable resource is accessible, local, and made in Wisconsin. Clearly, workforce skills development is at the heart of the distinguishing features of "best practice." Our challenge is to define and design the most effective methods of reaching all Wisconsin employers with vital information and insights from those at the cutting edge of productivity enhancements.

Findings:

- Twenty percent of Wisconsin employers are "best practice" firms leading the way with workplace innovation, and are having difficulty finding skills.
- "Best practice" firms have been hampered by skill deficiencies which frequently are not apparent until technical skill upgrading is attempted.
- Front-line workers are expected to demonstrate a new level of analytical and interpersonal skills in the cutting edge work environment of "best practice" firms.
- A big part of being a "best practice" firm is being closely affiliated with training and education of their workforce and the workforce of the future.
- Technical colleges receive high ratings from "best practice" firms with a growing demand for flexibility in course delivery and appropriateness of course content.

APPENDICES

A. Survey Responses

B. Survey Form

C. List of Wisconsin Counties by Region

Appendix A

Survey Responses

1) To what extent does your firm have difficulty finding qualified non-managerial employees?

41% - Frequently
51% - Occasionally
8% - Never

2) How often does a lack of skills among non-managerial employees prevent your firm from competing effectively, expanding, or entering new markets?

17% - Frequently
55% - Occasionally
28% - Never

a) Check each of the reasons below that may explain why you are unable to find non-managerial workers with the needed skills. (CHECK ALL THAT APPLY)

52% Declining supply
41% Competition for workers
37% Poor work attitudes
29% Rising skill needs
19% Low value of education by worker
18% Non-competitive salaries
17% Poor education system
9% Difficult work conditions
8% Drug Abuse/Alcoholism
6% Other

3) Based on your firm's workplace needs, how well do most of your workers do in each of the following skills?

Skills	Excellent	Good	Fair	Poor	V. Poor
a) General Reading	8%	48%	36%	7%	1%
b) Reading Manuals	5%	30%	41%	20%	5%
c) Writing	2%	23%	44%	25%	6%
d) Verbal/Speaking	3%	42%	45%	8%	2%
e) Adding/Subtracting Nos.	7%	42%	40%	10%	2%
f) Using Fractions	6%	28%	34%	23%	8%
g) Reading Graphs	6%	28%	41%	19%	7%
h) Basic Algebra	4%	16%	33%	33%	14%
i) Ability to work w/others	9%	58%	29%	3%	5%
j) Ability to follow directions	8%	51%	36%	5%	1%
k) Work Ethic	15%	45%	28%	9%	3%
l) Analytical Abilities	4%	29%	47%	17%	4%
m) Critical Thinking	5%	32%	42%	18%	4%
n) General Computer	6%	24%	32%	27%	12%
o) Leadership	2%	23%	47%	22%	6%

4) Which of the following changes--if any--has your firm made in the past seven years? (CHECK ALL THAT APPLY)

42% - New product line
40% - New production process
39% - New market entrance
38% - New quality systems
18% - Statistical process control
17% - Introduction of work team
17% - Labor management committees
16% - Just-in-Time Inventory
7% - Other

4a) As a result of the changes you checked above, have your firm's non-managerial skill requirements increased, stayed the same, or decreased for most of the following five types of workers?

Workers	Increased Skills		Stayed the Same		Decreased Skills		Unknown	
	Grp. I	Grp. II	Grp. I	Grp. II	Grp. I	Grp. II	Grp. I	Grp. II
a) Maintenance	29%	48%	30%	51%	--%	1%	41%	0%
b) Production	39%	60%	25%	38%	2%	2%	35%	0%
c) Clerical	46%	67%	23%	33%	--%	--%	31%	0%
d) Technical	46%	72%	17%	27%	--%	--%	37%	0%
e) Foreman/Lead	50%	76%	15%	23%	1%	1%	35%	0%

Note: Grp. I represents a percentage of the total respondents including a count of those who did not answer the question. Grp. II reflects only those employers who responded excluding the unknown/missing responses.

5) Has your firm made any significant investments in new technology within the past seven years?

69% - Yes 29% - No 2% - Unknown

5a) As a result of new technologies, have your firm's skill requirements increased, stayed the same, or decreased, for most of these five types of workers?

Workers	Increased Skills		Stayed the Same		Decreased Skills		Unknown	
	Grp. I	Grp. II	Grp. I	Grp. II	Grp. I	Grp. II	Grp. I	Grp. II
a) Maintenance	26%	56%	21%	44%	--%	--%	52%	0%
b) Production	35%	68%	15%	29%	1%	2%	48%	0%
c) Clerical	46%	75%	15%	24%	--%	5%	39%	0%
d) Technical	45%	83%	9%	17%	--%	--%	46%	0%
e) Foreman/Head	41%	78%	11%	22%	--%	--%	48%	0%

6) What are the technical skills most needed by your firm which Wisconsin high schools should include in their courses?

HS Courses	Total	SE	C	WC	S	N	NE	NW
General Reading	9%	9%	6%	13%	8%	6%	10%	10%
Writing	10%	10%	9%	12%	10%	9%	10%	9%
General Computer	15%	15%	20%	12%	15%	14%	14%	14%
Technical Computer	14%	15%	17%	10%	12%	16%	14%	14%
Work Ethic	4%	3%	3%	2%	5%	5%	4%	3%
Math/Stats	20%	19%	19%	20%	18%	19%	22%	21%
Communication	4%	4%	1%	1%	3%	3%	4%	3%
Clerical	4%	5%	3%	5%	4%	3%	2%	2%
Critical Thinking	3%	3%	4%	--%	4%	3%	3%	4%
Human Relations	2%	1%	1%	--%	1%	3%	3%	2%

7) What are the technical skills most needed by your firm which Wisconsin technical colleges should include in their courses?

Tech College Courses	Total	SE	C	WC	S	N	NE	NW
General Reading	3%	2%	1%	4%	3%	--%	5%	1%
Writing	3%	4%	4%	8%	5%	2%	4%	2%
Math/Stats	9%	10%	9%	14%	6%	6%	12%	6%
Work Ethic	2%	1%	--%	3%	4%	--%	2%	3%
General Computer	20%	21%	25%	20%	18%	20%	21%	19%
Technical Computer	25%	26%	26%	17%	20%	34%	25%	33%
Clerical	4%	5%	6%	2%	5%	4%	3%	4%
Communication	2%	3%	3%	3%	2%	1%	2%	1%
Verbal/Speaking	2%	2%	--%	5%	4%	--%	--%	--%

8) What are your firm's future technical skill needs?

Courses	Total	SE	C	WC	S	N	NE	NW
Technical Computer	30%	33%	27%	22%	24%	32%	29%	35%
General Computer	29%	29%	30%	24%	29%	33%	27%	29%
Math/Stats	5%	4%	6%	9%	4%	6%	6%	3%
Health Sciences	8%	6%	8%	11%	8%	8%	11%	9%
Clerical	5%	6%	3%	1%	8%	1%	3%	7%

9) Please check each of the things listed below your firm is now doing to meet its non-managerial skill needs. (CHECK ALL THAT APPLY)

48% - Paying workers tuition
40% - Working with technical colleges
38% - Recruiting workers from other firms
29% - Supporting apprenticeship programs
20% - Seeking customized training
19% - Other
17% - Federal/state job training
16% - Employing private training firms
16% - Nontraditional teaching programs

10) In your opinion, what should be the State of Wisconsin's three highest priorities in improving the basic reading, communication, and math skills of non-managerial workers? (RANK THE TOP THREE WITH 1 BEING HIGHEST)

#1 - Improve basic skills in elementary school
#1 - Improve basic skills in high school
#2 - Increase basic skills training in technical colleges
#3 - Better coordination between technical college classroom and training in the workplace

11) What should be the State of Wisconsin's three highest priorities in improving the job-specific skills of non-managerial workers? (RANK THE TOP THREE WITH 1 BEING HIGHEST)

#1 - Expand vocational programs in high schools
#2 - Expand/improve technical training
#3 - Coordination between technical colleges and work place
#4 - Expand apprenticeships to more occupations

12) About how many hours of training in the first year of work does the average newly hired non-managerial employee in your firm require for each of these five types of workers?

Hours	Maintenance	Production	Clerical	Technical	Lead Worker
0 - 39	22.3	18.7	18.6	9.4	11.2
40 - 70	17.8	20.8	28.3	16.6	14.7
80 - 119	14.0	21.1	21.6	17.5	15.7
120 - 199	11.8	15.7	14.1	16.1	14.7
200 - 519	21.1	17.6	13.3	25.8	23.5
520 +	12.8	5.6	3.8	13.7	20.2

13) Please provide your best estimate of the average total amount per non-managerial employee your firm spent in 1989 for training.

	Number of Employees		
Amount p/Employee	10-49	50-249	250 +
$0 - $499	40.4%	40.1%	42.9%
$500 - $999	15.6%	18.3%	23.9%
$1,000 - $1,999	15.3%	17.2%	13.1%
$2,000 - $2,999	11.0%	6.2%	7.1%
$3,000 - $4,999	5.6%	5.8%	2.6%
$5,000 - $9,999	6.7%	6.2%	8.0%
$10,000 +	5.4%	6.2%	2.4%

14) Again, estimate what percent--on average--of this amount was spent in basic math or reading and writing skills. (ENTER 0 IF NONE)

74% = 0%
6% = 5%
7% = 10%
5% = 20%
2% = 25%
6% = Other

15) In which of the ways listed below has your firm been represented or involved with local or regional educational and training organizations within the last five years? (CHECK ALL THAT APPLY)

33% - Donation to educational organizations
19% - Technical college advisory group
15% - Community-based organization job training program
14% - Elementary/secondary school advisory group
9% - Private Industry Council
9% - Joint apprenticeship
8% - University or college advisory group
6% - Job Service employer
4% - Technical District Board

16) What major impediments--if any--does your firm have in getting involved with local or regional educational and training organizations?

75% - None
12% - Time
13% - Other

17) What kinds of involvement has your firm had over the last five years with Wisconsin's technical college system--Vocational, Technical and Adult Education? (CHECK ALL THAT APPLY)

60% - Hired technical college students/graduates
51% - Sent employees to technical colleges
23% - Consulted with technical college representatives
20% - In-house training through technical colleges
7% - Other

18) Please rate the extent to which you are satisfied with each of the following characteristics of Wisconsin's technical college system.

Characteristics	Very Satis.	Satis.	Dissat.	Very Dissat.	No Opinion
a) Quality of training	11%	57%	8%	1%	23%
b) Quality of graduates	9%	56%	10%	1%	24%
c) Flexibility	8%	39%	18%	3%	32%
d) Appropriateness of courses	6%	42%	19%	3%	29%

19) What is the approximate number of non-managerial employees located at this site?

Non-managerial Employees

	Total
Mean	87

20) How many other sites does your firm have, not counting this one?

70% - None
11% - 1
6% - 2
3% - 3
2% - 4

20a) Approximately how many non-managerial employees do you have, in total, at other sites?

Mean = 346

20b) Is your present site considered company headquarters?

21% - Yes
9% - No

21) Which one of the following terms best describes the nature of most of the jobs done by your non-managerial workforce? (CHECK ONE)

28% - Highly flexible jobs
30% - Highly routine jobs
42% - Intermediate

22) In the past five years, has the number of your firm's non-managerial employees:

62% - Increased
30% - Stayed the same
9% - Decreased

23) Over the next five years, do you anticipate that - as compared to now - the number of your firm's employees will:

60% - Increase
36% - Stay the Same
4% - Decrease

24) Do most of your non-managerial employees belong to a union?

20% - Yes
80% - No

25) What if your title?

39% - CEO/Sole Owner
19% - Personnel Manager/Training Officer
19% - Other
15% - General Manager
8% - Partner

Profile of Survey Respondents

1.

	Number of Employees		
Total Responses	10-49	50-249	250 plus
100%	67%	26%	7%

NOTE: Rounding the decimal may result in slight variance of total from 100 percent.

Observation No. 1: Respondents reflect heavy representation of smaller to medium size firms (93% of the total), which reflects the state distribution of companies by size.

2. **Standard Industrial Classification (SIC)**

No. Emp.	Urban	Rural	Total	Bus.	Health	Con-struc-tion	Durable Goods	Non Durable
10-49	73%	27%	67%	77%	59%	89%	61%	59%
50-249	67%	33%	26%	18%	31%	11%	31%	32%
250+	70%	30%	7%	4%	10%	1%	8%	9%
Total	71%	29%						
Urban			71%	88%	70%	72%	67%	69%
Rural			29%	12%	30%	28%	33%	31%

Observation No. 2a: The survey's urban/rural split reflects the incidence of business by location in the state.

Observation No. 2b: Representation of the durable goods industry was higher (33%) with the business sector lowest (12%). The majority of business and construction respondents were small businesses. Of the larger employers respondents, the higher representation was in health (10%) and non-durable goods (9%).

3.	No. of Employees			Bus.	Health	Constr.	Durable Goods	Non Durable	TOTAL
Location	10-49	50-249	250+						
Central	4%	5%	7%	4%	5%	5%	3%	6%	5%
Southeast	39	35	37	47	33	36	42	31	38%
South	15	15	16	18	19	17	10	17	15%
West Cntrl	4	4	5	4	5	7	3	3	4%
North	5	7	6	1	5	5	8	5	6%
Northeast	19	23	22	20	19	18	19	26	20%
Northwest	14	11	7	6	14	12	15	12	12%
TOTAL	67%	26%	7%	12%	19%	17%	22%	20%	100%

Observation No. 3a: Respondents represented the more industrialized regions of the State particularly the Southeast and Northeast as reflected in actual industry distribution in Wisconsin.

4.

SMSA Location	Cntrl	SE	S	WC	N	NE	NW	TOTAL
Urban	1%	38%	9%	2%	--%	15%	6%	71%
Rural	3%	--%	6%	2%	6%	6%	6%	29%
Total	4%	38%	15%	4%	6%	21%	12%	100%

Observation No. 4: Fifty-four percent of the urban respondents were from the Southeast (38%). Rural respondents made up nearly half or more in the Central, North, West Central and North.

Appendix B
Survey Form

Wisconsin Board of Vocational,
Technical and Adult Education
September, 1990

Wisconsin Survey Research Laboratory
University of Wisconsin-Extension
Project 2017

Governor's Commission For A Quality Workforce

SKILL NEEDS IN WISCONSIN

1. To what extent does your firm have difficulty finding qualified non-managerial employees?

   ____ 1. Frequently ____ 2. Occasionally ____ 3. Never

2. How often does a lack of skills among non-managerial employees prevent your firm from competing effectively, expanding, or entering new markets?

   ____ 1. Frequently ____ 2. Occasionally ____ 3. Never (Skip to Question 3.)

   2a. Check each of the reasons below that may explain why you are unable to find non-managerial workers with the needed skills. *(CHECK ALL THAT APPLY)*

   ___ a. Rising skill needs.
   ___ b. Declining supply of workers with needed skills.
   ___ c. Competition for workers among firms.
   ___ d. Working conditions are difficult.
   ___ e. Salaries are not competitive with other industries.
   ___ f. Drug abuse/alcoholism.
   ___ g. Poor work attitudes.
   ___ h. Workers place a low value on education.
   ___ i. The educational system does a poor job.
   ___ j. Other (Specify): _____

3. Based on your firm's workplace needs, how well do most of your non-managerial workers do in each of the following skills?

Skill Areas	1. Excellent	2. Good	3. Fair	4. Poor	5. Very poor	6. Don't know	7. Not relevant
a. General reading skills	____	____	____	____	____	____	____
b. Reading technical manuals	____	____	____	____	____	____	____
c. Writing skills	____	____	____	____	____	____	____
d. Verbal or speaking skills	____	____	____	____	____	____	____
e. Adding and subtracting numbers	____	____	____	____	____	____	____
f. Using fractions	____	____	____	____	____	____	____
g. Reading graphs	____	____	____	____	____	____	____
h. Basic algebra	____	____	____	____	____	____	____
i. Ability to work with others	____	____	____	____	____	____	____
j. Ability to follow directions	____	____	____	____	____	____	____
k. Work ethic (punctuality, etc.)	____	____	____	____	____	____	____
l. Analytical abilities (organize/ classify facts and ideas)	____	____	____	____	____	____	____
m. Critical thinking skills (can figure out what to do)	____	____	____	____	____	____	____
n. General computer skills	____	____	____	____	____	____	____
o. Leadership skills	____	____	____	____	____	____	____

4. Which of the following changes—if any—has your firm made in the past seven years? *(CHECK ALL THAT APPLY)*

   ___ a. New product line.
   ___ b. New production process.
   ___ c. New market entrance.
   ___ d. Introduction of work teams.
   ___ e. New quality systems.
   ___ f. Labor-Management Committees.
   ___ g. Statistical Process Control.
   ___ h. Just in Time Inventory.
   ___ i. Other changes (Specify): _____
   ___ j. No changes in last seven years: SKIP TO QUESTION 5, NEXT PAGE.

4a. As a result of the changes you checked above, have your firm's non-managerial skill requirements increased, stayed the same, or decreased for most of the following five types of workers?

Primary Worker Type	1. Increased skills	2. Stayed the same	3. Decreased skills	4. Not relevant
A. Maintenance workers.	____	____	____	____
B. Production workers.	____	____	____	____
C. Clerical workers.	____	____	____	____
D. Technical workers.	____	____	____	____
E. Foreman/Lead Workers.	____	____	____	____

5. Has your firm made any significant investments in new technology within the past seven years?

_____ 1. Yes _____ 2. No: SKIP TO QUESTION 6.

5a. As a result of these new technologies, have your firm's skill requirements increased, stayed the same, or decreased, for most of these five types of workers?

Worker Type	1. Increased skills	2. Stayed the same	3. Decreased skills	4. Not relevant
A. Maintenance workers.	_____	_____	_____	_____
B. Production workers.	_____	_____	_____	_____
C. Clerical workers.	_____	_____	_____	_____
D. Technical workers.	_____	_____	_____	_____
E. Foreman/Lead Workers.	_____	_____	_____	_____

6. What are the technical skills most needed by your firm which Wisconsin **high schools** should include in their courses?

_____

_____

_____

7. What are the technical skills most needed by your firm which Wisconsin **technical colleges** should include in their courses?

_____

_____

_____

8. What are your firm's future technical skill needs? _____

_____

_____

9. Please check each of the things listed below that your firm is now doing to meet its non-managerial skill needs. *(CHECK ALL THAT APPLY)*

___ a. Working with vocational/technical colleges.
___ b. Paying workers' tuition.
___ c. Employing private training firms.
___ d. Seeking customized training from vocational/technical colleges.
___ e. Working with federal/state job training programs.
___ f. Supporting apprenticeship programs.
___ g. Recruiting skilled workers from other firms.
___ h. Using non-traditional teaching programs (such as interactive video, satellite teleconferences, etc).
___ i. Other things (Specify): _____
___ j. Firm has done nothing like these to meet non-managerial skill needs.

10. In your opinion, what should be the State of Wisconsin's **three highest priorities** in improving the **basic** reading, communication, and math skills of non-managerial workers? (RANK THE TOP THREE WITH 1 BEING HIGHEST)

___ a. Improve basic skills training in **elementary** schools.
___ b. Improve basic skills training in **high** schools.
___ c. Increase basic skills training at **technical colleges**.
___ d. Increase basic skills training in federal/state **job training** programs.
___ e. Add basic skills training to **apprenticeship** programs.
___ f. Better coordination between **technical college** classroom instruction and training in the workplace.
___ g. Other (Specify): _____

11. What should be the State of Wisconsin's **three highest priorities** in improving the **job-specific skills** of non-managerial workers? (RANK THE TOP THREE WITH 1 BEING HIGHEST)

___ a. Improve training in federal/state job training programs.
___ b. Expand/improve technical training at technical colleges.
___ c. Expand vocational programs in high schools.
___ d. Expand apprenticeship or workplace learning programs to more occupations.
___ e. Better coordination between technical college classroom instruction and training in the workplace.
___ f. Other (Specify): _____

12. About how many hours of training in the first year of work does the average newly hired non-managerial employee in your firm require for each of these five types of workers?

Primary Worker Type	# Hrs. Training
A. Maintenance worker	_____
B. Production worker	_____
C. Clerical worker	_____
D. Technical worker	_____
E. Foreman/Lead worker	_____

13. Please provide your best estimate of the average total amount **per non-managerial employee** your firm spent in 1989 for training.

Average per non-managerial employee for training: $ _____

14. Again, estimate what percentage - on average - of this amount was spent on training in basic math or reading and writing skills. ___ 0. nothing, or %: _____

15. In which of the ways listed below has your firm been represented or involved with local or regional educational and training organizations within the last five years? *(CHECK ALL THAT APPLY)*

___ a. Represented on an elementary or secondary school advisory group.
___ b. Represented on a technical college advisory group.
___ c. Represented on a technical district board.
___ d. Represented on a Private Industry Council (PIC).
___ e. Represented on a Joint Apprenticeship Council.
___ f. Represented on a Job Service Employer Committee.
___ g. Involved with a community-based organization's job training program.
___ h. Represented on a university or college advisory group.
___ i. Made donations to educational organizations.
___ j. No involvement or representation like this.

16. What major impediments - if any - does your firm have in getting involved with local or regional educational and training organizations?

___ 0. None, or _____
_____
_____

17. What kinds of involvement has your firm had over the last five years with Wisconsin's technical college system - Vocational, Technical and Adult Education? *(CHECK ALL THAT APPLY.)*

___ a. Hired technical college students or graduates.
___ b. Sent employees to technical college for training.
___ c. Provided in-house training through technical college.
___ d. Consulted with or received technical assistance from technical college representatives.
___ e. Other (Specify): _____
___ f. No involvement of firm with technical system.

PLEASE GO ON TO THE LAST PAGE

18. Please rate the extent to which you are satisfied or dissatisfied with each of the following characteristics of Wisconsin's technical college system.

	1. Very satisfied	2. Satisfied	3. Dissatisfied	4. Very dissatisfied	5. No opinion
A. Quality of the technical college training programs.	____	____	____	____	____
B. Quality of the technical college graduates.	____	____	____	____	____
C. Flexibility of the technical college in meeting the needs of your firm.	____	____	____	____	____
D. Appropriateness of the technical college courses and in-service programs to the needs of your firm.	____	____	____	____	____

BACKGROUND INFORMATION ABOUT YOUR FIRM

19. What is the approximate number of non-managerial employees located at this site? # employees: _____

20. How many **other** sites does your firm have, not counting this one?

____ 0. No other sites: GO TO QUESTION 21.

____ # other sites

20a. Approximately how many non-managerial employees do you have, in total, at other sites? #: _____

20b. Is your present site considered company headquarters?
____ 1. Yes ____ 2. No

21. Which one of the following terms best describes the nature of most of the jobs done by your non-managerial workforce? *(CHECK ONE)*

____ 1. Highly Flexible Jobs (little routine involved)
____ 2. Highly Routine Jobs (little flexibility involved)
____ 3. Intermediate

22. In the past five years, has the number of your firm's non-managerial employees:

____ 1. Increased ____ 2. Stayed about the same ____ 3. Decreased

23. Over the next five years, do you anticipate that - as compared to now - the number of your firm's non-managerial employees will:

____ 1. Increase ____ 2. Stay about the same ____ 3. Decrease

24. Do most of your non-managerial employees belong to a union? ____ 1. Yes ____ 2. No

25. What is your title?

___ 1. Chief Executive Officer/Sole Owner/Proprietor
___ 2. Partner
___ 3. General Manager
___ 4. Personnel Manager/Human Resources Manager
___ 5. Training Officer
___ 6. Other (Specify): _____

26. Any additional comments you have about the skill levels of the Wisconsin non-managerial workforce will be appreciated.

_____

_____

_____

_____

_____

27. If you would be willing to be contacted by telephone for a short follow-up interview on the topic of this research, please provide your name and telephone number.

Name _____ Telephone: ( ) _____

THANK YOU VERY MUCH. PLACE THE COMPLETED QUESTIONNAIRE IN THE POSTAGE PAID ENVELOPE PROVIDED AND MAIL TO:

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F-2034d

Appendix C

List of Wisconsin Counties by Region

Southeast
Milwaukee County
Washington
Ozaukee
Waukesha
Racine
Kenosha
Walworth

South
Columbia
Dane
Jefferson
Rock
Green
LaFayette
Grant
Iowa
Crawford
Richland
Vernon
Sauk

Northeast
Door
Brown
Outagamie
Kewaunee
Manitowoc
Calumet
Winnebago
Green Lake
Fond du Lac
Sheboygan
Dodge

Central
Marathon
Waupaca
Portage
Wood
Adams
Waushara
Marquette

North
Shawano
Oconto
Marinette
Florence
Forest
Langlade
Lincoln
Price
Taylor
Oneida
Vilas
Menominee

Northwest
Iron
Ashland
Bayfield
Douglas
Sawyer
Washburn
Burnett
Rusk
Barron
Polk
Clark
Chippewa
Eau Claire
Dunn
Pierce
St. Croix

West Central
Pepin
Buffalo
Trempealeau
Jackson
La Crosse
Monroe
Juneau

Related Reading

Major resources consulted by the Commission include:

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A World Class Workforce For Wisconsin

Governor's Commission For A Quality Workforce

April, 1991

Recommendations

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A World Class Workforce For Wisconsin

Recommendations

A Report to:
Tommy G. Thompson
Governor

The Governor's Commission for a Quality Workforce
Carl Weigell
Chairman

April, 1991

Overview

The economic realities facing workers in Wisconsin have changed dramatically. Established workers are experiencing stagnant or declining earning power. For many households, earnings are higher only because more family members are going to work or working longer hours. For many young people entering the job market, full-time employment in positions paying enough to support an independent adult or family, offering job security and benefits, and providing opportunities for advancement, have become unrealizable expectations.

The U.S. dominance in international markets for most of the last fifty years that financed the American Dream has eroded. Productivity growth in the U.S. has failed to keep pace with that in other countries. American business and industry have responded to international competition by cutting costs and restructuring their operations. But a new set of competitive standards has emerged in the world market place. Other countries have not just improved productivity. They have also positioned themselves to compete more effectively for customers who value quality, variety, customization, convenience, and timeliness. By trying to compete on cost alone, many producers in Wisconsin and in the nation as a whole are simply being outclassed in the world market.

Only by learning to compete successfully in today's global economy will we be able to ensure prosperity for all. Many employers in Wisconsin already have learned the hard lessons of the last fifteen years. Like employers across the country, they have begun to adopt new strategies to compete on the high end of the international market. They have begun to create a world class workforce for Wisconsin that can outperform workers anywhere in the world. As they do, these innovative employers in Wisconsin are experiencing real skill shortages and expressing concerns about the growing educational needs of their workforce.

The Governor's Commission For A Quality Workforce was charged with developing strategies to ensure that employers in Wisconsin enter the twenty-first century with the workforce they need to compete in the world marketplace. Our findings are divided into two sections: *Building a World Class Workforce*, focussing on the need to upgrade the skills of the existing adult workforce and *Educating the Workers of Tomorrow* , focussing on the need to improve the educational performance and preparation of our future workers.

The Commission considers all of its recommendations to be of equal importance.

Action Plan for Building a World Class Workforce

Policy Recommendation #1: More Wisconsin employers must adopt new technology and methods of organizing work. To support this effort, technical colleges must facilitate employer leadership and participation in worker training and retraining.

Productivity growth requires not only the adopting new flexible technology, but changing the organization of work and the skills and knowledge of workers. Employers in Wisconsin are beginning to redesign operations to better meet the needs of their customers. They are placing greater emphasis on improving the efficiency of customized production through appropriate use of workers and technology. Successful firms are flattening out their managerial structure, pushing more decision making authority down to front-line workers.

The faculty and staff of Wisconsin's technical colleges are natural partners of employers in designing and implementing new programs to facilitate these changes. Worker training and retraining are an integral part of the mission and activities of the state's Technical College System. Technical assistance, customized training, and occupational instruction tailored to meet the needs of employers are already growing segments of technical college operations. What is missing, however, is a concerted effort on the part of the Technical College System to work with business and industry across the state to promote and plan greater involvement by employers in broad skills development. Strategies to implement these changes:

- Provide training for adopting new ways of organizing work and upgrading the state's workforce.
- Set direction for worker training through employer consortia.
- Establish joint Technical College/University of Wisconsin/independent college Applied Technology Centers to increase awareness of new technology and to provide assistance in plant modernization through assessment, planning, consulting, and training to implement off-the-shelf technological solutions.
- Improve monitoring and evaluation of vocational-technical training to ensure it meets the needs of employers and workers.

Policy Recommendation #2: Technical colleges must upgrade occupational education to meet the growing needs of employers.

Business and industry want workers who are workplace ready. Meeting the standards demanded by employers will require increased attention to mastery of workplace-based skill competencies. Technical college students must be challenged to achieve these high levels of competency and rewarded when they do. But competency alone is not enough. Measurement must be performance-based, capturing not only competency, but judgment in decision making and problem solving situations. In addition, educators must not only assess individual students, but also evaluate entire training programs to ensure that the outcomes of the programs meet the needs of students, workers, and employers. Strategies to implement these changes:

- Expand and support outcome-oriented, competency-based educational objectives for all Technical College programming, including occupational preparation, basic skills instruction, and industry-based technical training.
- Expand professional growth opportunities for technical college faculty and staff.
- Incorporate best practice training standards and practices into the instructional programs of the Technical College System.

Policy Recommendation #3: Wisconsin's employers and workers, in partnership with the technical colleges, must reskill the existing workforce for a more competitive economy.

Upgrading the skills of Wisconsin's workforce will require a concerted and continuing effort on the part of employers and the technical colleges. Along with determining what skills workers will need to enable business and industry to regain its competitive edge, on-going training for all workers must become a priority of Wisconsin's employers. A team effort, pairing technical college staff with employers and workers, is needed to ensure success. Strategies to implement these changes:

- Expand competency testing of new hires and existing employees.
- Expand employer-sponsored skills training through increased continuing education for adult workers on technical college campuses, through private and in-house training efforts, expanded apprenticeship programs, and through Workplace Learning Centers.
- Increase collaboration between Technical College and University of Wisconsin faculty to promote work-based learning.
- Expand awareness of the need for lifelong learning.

Policy Recommendation #4: Technical colleges must work with business and industry across the state to improve access to training.

Making education and training opportunities available on a flexible schedule convenient to employers and workers must become a priority for the state's technical colleges. By expanding outreach efforts and embracing new modes of service delivery, educators will be better able to serve both small and medium-sized firms and those remote from technical college facilities. By working with employers to develop training consortia, technical colleges will be better positioned to provide cost effective education and training programs to small and medium-sized firms. In addition, technical colleges must be able to mount programs when and where they are needed. Though safeguards must be in place to prevent overloads, teaching in a technical college cannot be viewed simply as a 9 to 5 job. Strategies to implement these changes:

- Expand outreach efforts to business and industry through adopting more flexible schedules for training provision.
- Expand options for individualized learning of basic skills and technical/occupational instruction through the use of distance learning and open entry/open exit programming.
- Establish additional Workplace Learning Centers.
- Expand and enhance strategies for marketing and recruiting technical college programs to adults.
- Form training consortia to pool resources of small and medium-sized firms.
- Increase minority student enrollment and completion of technical programs leading to placement in high skill/high wage careers.

Action Plan for Educating the Workers of Tomorrow

Policy Recommendation #5: Wisconsin's system of public education must adopt outcome-oriented, competency-based educational objectives throughout the primary and secondary grades.

Together with the Commission on Schools for the 21st Century chaired by Ody Fish, the Governor's Commission for a Quality

Workforce believes that we must refocus Wisconsin's system of public education to better meet the needs of the entire community. Much of the effort at school reform in Wisconsin over the last decade has been directed at increasing the resources available in schools. Evaluation of schooling has focussed on meeting a set of standards with regard to instructional time, curricular offerings, testing, and the like. Standards are necessary to ensure that educators and students have the resources they need to engage in effective schooling, but standards alone are not enough. We join with the Fish Commission in believing that schools should be evaluated in terms of how well they do at imparting to students what they need to know to be effective members of our society. Strategies to implement these changes:

- Establish goals and obtain agreement in the community on essential learner outcomes.
- With input from educators, the business community, and the public, establish a statewide framework for curriculum and student assessment for all primary and secondary schools in the state.
- Establish a continuous process of assessment of pupil performance.
- Adopt new rules governing teacher preparation, certification, and staff development to implement outcome-oriented education across the state.
- Develop programs to foster links between educators and the business community.

Policy Recommendation #6: Educators, the business community, and state policy makers must establish attainment of Certificate of Initial Mastery as a prerequisite for eligibility for employment or training opportunities for high school students.

We must raise our expectations for the educational performance of all students. One way of doing this is to set new educational standards based on defined competencies for all students, benchmarked to the highest in the world. Most students should be able to meet these standards by the end of tenth grade at about age 16. High school programs would continue to provide instruction in basic skills to students who had not yet met the standards. Those demonstrating their competency would be awarded a Certificate of Initial Mastery. Obtaining this certificate would permit high school students to pursue a number of alternative paths that would be available in a redesigned high school curriculum leading to a high school diploma. An important way that employers could convey their commitment to increasing the educational performance of all students would be to restrict employment of students who had not obtained a Certificate of Initial Mastery or were not working toward its attainment. Strategies to implement these changes:

- Design and implement changes in curriculum and assessment leading to granting of Certificates of Initial Mastery.
- Adopt needed changes in child labor laws to restrict hours of employment.

Policy Recommendation #7: Technical colleges and high schools must substantially improve alternative educational programs for students at risk of dropping out of high school and for adults in need of high school instruction.

The traditional secondary school setting has best served students bound for university. While many Wisconsin high school students seek a four-year degree, seventy percent will neither attend college nor complete their studies if they do enter university. We need to restructure the high school curriculum to provide more focussed learning experienced for all students. Even when redesigned, the secondary school system may not be able to meet the needs of every student. The Commission supports the Technical College System's efforts to seek statutory changes to permit high school students age 16 or older to attend technical college full or part-time to work toward earning a high school diploma. The technical college programs should be designed to meet the state requirements for graduation. Students completing the programs should be granted a regular high school diploma.

Earning a high school diploma once a student falls behind or leaves high school is much more difficult. Yet without a diploma, our youth face a bleak future and limited hope of economic self-sufficiency. Students need more information about labor market conditions and high school options. Second chance programs available through technical colleges must continue to provide adults with opportunities to pursue a high school diploma or to prepare for postsecondary education and training. Strategies to implement these changes:

- Seek statutory changes to permit interested students 16 or older to attend technical college on a full or part-time basis to complete high school.
- Provide mandatory technical college experiences for students participating in statutory at risk programs.
- Expand second chance programs in technical colleges to permit non-completers to return to school to earn a high school diploma or complete a high school equivalency program.

- Develop and expand innovative and accelerated basic skills development programs throughout the Technical College System.

Policy Recommendation #8: High school curricula must be redesigned to prepare non-university bound students for technical careers.

Wisconsin, unlike many states, has a strong technical college system. Preparing new workers for technical and entry-level positions is a central mission of the Technical College System. What is missing is a strong link between the technical colleges and the kinds of schooling offered in the state's secondary schools. We need to design and put in place a parallel high school curriculum to prepare high school students for technical education in the way that students are now prepared for baccalaureate education.

A Tech Prep curriculum would enable high school graduates to make a successful transition to postsecondary education or to work. As it is evolving in Wisconsin, Tech Prep combines a common core of applied academic and technical courses at the high school level. Through integrated curricula in broad occupational areas, students acquire higher level basic and pretechnical skills needed in the workforce and for further technical education. Strategies to implement these changes:

- Establish Tech College Prep/Trade Prep/Occupational Prep options with appropriate resources for high school students statewide.
- Expand existing apprenticeship programs for high school graduates.
- Permit interested students 16 or older to attend technical college on a full or part-time basis to complete high school.

Policy Recommendation #9: Educators and counselors in high schools must work with employers to improve the transition from school to work for students entering the workforce directly.

For the forty to fifty percent of high school students not seeking postsecondary education, our communities offer little help in smoothing the transition from school to work. Instead, we rely primarily on parents to provide youth with leads and assistance in entering the full-time labor market. This solution works best for youth whose parents themselves are successful in the labor market. For the increasing proportion of youth being raised in poverty, parents can provide little more than encouragement. Strategies to implement these changes:

- Establish school/business partnerships with all employers of high school students.
- Expand availability of work-based learning experiences, including internships, for high school students.
- Examine extending the school year and other alternatives to allow time for work-based learning in secondary education.
- Implement Education for Employment curriculum in all school districts to improve career awareness.

Policy Recommendation #10: Educators and counselors in primary and secondary schools must improve career education for all students throughout their educational experience.

Our future prosperity depends on the availability of a workforce with high basic skill levels, technical know how, and the willingness to view education and training as a lifelong process. The business community and educators must communicate these needs to parents and to students. Together, they must encourage more students to prepare for and to pursue technical training in high school and through postsecondary opportunities in technical colleges. At a minimum, technical colleges need to set goals for recruiting and retaining at least twice as many students out of each high school class as they do now. Two strategies that would assist in making these changes:

- Improve and expand marketing of technical career paths.
- Expand technical college experiences for high school students.

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TOMMY G. THOMPSON

Governor
State of Wisconsin

April 1991

To the Citizens of Wisconsin:

The State of Wisconsin is renowned for its many resources - one of the greatest being its highly trained workers. Wisconsin's skilled and committed workforce has helped earn for our state a national reputation for a healthy economic environment. Yet, the growing demands of new technology in the workplace and reports of labor shortages due to rapidly changing skill needs indicate challenges to our productive momentum. As we look to the 21st century and beyond, all of the critical elements of this challenge must be examined to insure a World Class Workforce for Wisconsin.

In January of 1990, I appointed the Commission for a Quality Workforce to examine this workforce issue in conjunction with the Wisconsin Technical College System. The goal of this Commission was to crystallize the issues and establish the necessary direction for skill development policies in the State of Wisconsin. In my opinion, the Commission has not only met, but exceeded my expectations. I commend the visionary Commission, under the leadership of Carl Weigell, for their impressive and timely effort.

The Governor's Commission for a Quality Workforce was formed because of my pledge to uphold the Wisconsin tradition of skilled workers who are second to none. Through investments in our people, starting in the schools and continued in the workplace, we create a foundation for on-going innovation and leadership among Wisconsin employers. We are fortunate to live in a state which supports this foundation through the exemplary skills training provided by our Wisconsin Technical College System. With the results of this study in hand, the Technical College System, in conjunction with high schools and the business and labor community, will be able to enhance significantly the development of this state's valued skilled worker reputation.

My sincere thanks to the members of the Commission for a Quality Workforce for their diligent efforts in studying the issues and formulating the recommendations in this report. May we now as employers, as educators, as policy makers, and as employees unite to maintain the high quality workforce needed for a strong economic future in the State of Wisconsin.

Sincerely,

Tommy

TOMMY G. THOMPSON
Governor

TGT/tfn

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April 1991

Dear Colleagues:

The employers of Wisconsin, like many across the nation, are acknowledging that competitive effectiveness in the global marketplace depends upon the permanent availability of a highly skilled and committed workforce.

Investing in people–human capital–has been a Wisconsin tradition anchored in a proud heritage of quality education. Yet, in this healthy environment, the new reality of emerging worker shortages and changing skill needs place the issues of future labor force development in sharp focus.

Governor Thompson established the Commission for a Quality Workforce to examine the education and training strategies that will produce job-ready employees mentally equipped with an impressive array of advanced skills. We were fortunate in being able to draw upon the work of two other commission appointed by Governor Thompson, the Commission on Schools for the 21st Century chaired by Ody Fish and the Commission on Minority Participation in Vocational-Technical Education chaired by Howard Fuller. In addition, the joint task force on implementing educational options in Wisconsin schools established by the Department of Public Instruction and the Technical College System provided valuable information on Tech Prep options for high school students.

Using the information derived from research and expert testimony, the Commission has produced a variety of important findings and recommendations that are presented in this report. Its contents include new ideas and challenges that are visionary yet practical in scope.

Our goal must now be to come together to create a statewide environment in which the culture of continuous improvement will flourish so that Wisconsin emerges as the national leader in all areas of quality and productivity.

Sincerely,

Carl Weigell
Commission Chair

Wisconsin Board of Vocational, Technical and Adult Education, 310 Price Place, Madison, WI 53705

1. Introduction

Most of us hope to live comfortably: to own a home, to obtain good health care, and to have time to enjoy recreational activities. From climate control systems to VCRs and microwave ovens, we rely on a host of modern appliances to make our lives comfortable and convenient. We have also come to expect our children's lives to be better than our own. We want, not only for ourselves, but also for them, a piece of the American Dream.

For many young people, the American Dream is slipping away. Increasingly, they are unable to find the kinds of jobs which made it possible for their parents to get a start in life, to begin a family, and to have a sense of future financial security. Instead, an economic malaise has befallen young Americans as real incomes have fallen or stagnated and the chances of living in poverty have increased.

Nor are their parents necessarily any better off. The income of the average family has continued to rise, but only as more family members have gone to work or increased the time they spend at work. Since 1969, the number of families supported by two or more earners grew by about 40 percent. While the income of households with two wage earner has continued to grow, that of married couples supported by one wage earner has not.

Having a high school diploma no longer guarantees success in the job market. Men with little education are particularly at risk. They are more likely not only to receive lower wages, but also to be unable to find work. Despite the long economic recovery of the 1980s, the gap between the earnings of high school dropouts and those of college graduates continues to widen. Since 1984, that gap has grown by nearly 20 percent.

Our economy has continued to grow, but only because more of us are at work. While the productivity of U.S. workers is the highest in the world, productivity growth in the U.S. has failed to keep pace with that in other countries. From 1960 to 1973, workers in the U.S. produced an average of 2.3 percent more each year than the year before. Since 1973, productivity growth in the U.S. has slowed to a crawl. On average, it now takes two and a half years to generate the gain in productivity that prior to 1973 had take one year.

Lagging productivity growth is only part of the picture. U.S. dominance in international markets for most of the last fifty years financed the American Dream. Our position in the world economy is slipping. In the age of mass production, American business and industry sold their goods around the world to an ever expanding market. Our huge domestic market, coupled with superior technology, large amounts of capital, a skilled workforce, and accomplished managers, provided the U.S. economy with unbeatable advantages for much of the postwar period. As other countries have begun to emulate the U.S., these advantages have been eroded.

American business and industry have responded by cutting costs and restructuring. Productivity growth has improved in the last several years, but weaknesses in U.S. industrial performance have caused the American economy to continue to lose ground.

Although cost remains a significant consideration, a new set of competitive standards has emerged in the world market place. While improving their own productivity performance, other countries have also positioned themselves to compete more effectively for customers who value quality, variety, customization, convenience, and timeliness. By trying to compete on cost alone, many U.S. producers are simply being outclassed in the world market.

The growing signs of economic distress among young adults and of less well-educated experienced workers point to the failure of the American strategy. Some of us are growing richer. But the majority are worse off. Only by learning again to compete successfully in the global marketplace will we be able to ensure a return to prosperity in America.

A High Skills Economy is Essential to International Competitiveness

Meeting the competition — and raising living standards — means changing the way America does business. American workers can compete with workers anywhere in the world. Given appropriate skills, and the right mix of technology and managerial techniques, American workers and American firms outperform those in the Pacific Rim and in Europe. Unfortunately, too few employers have been willing to invest the effort required to make the necessary changes.

One key to maintaining and improving our standard of living in Wisconsin and the nation is productivity growth. Business and industry in Wisconsin must continuously seek ways to improve performance in the workplace. Previously, we have relied on simplifying and automating jobs to decrease the costs associated with mass production — a low skill strategy which today is leading to a decline in average take home pay when inflation is taken into account.

Competing in today's global economy, where quality, variety, and responsiveness command high prices, requires a different approach to organizing work. Front-line workers must have more responsibility, use more judgment, and make decisions which impact directly on productivity and the bottom line. In short, they must have more skills and be empowered to use them. These higher skilled workers will command more pay, but productivity and quality gains for their firms will more than offset the costs to the company of higher wages and skill development.

Creating a Highly Skilled Workforce Demands Greater Investment in People

Many workers across Wisconsin are ill-equippled to deal with the sweeping changes business and industry must make to be competitive. They lack the

Signs of the Fading American Dream

Declines in earning power: After rising steadily for twenty-five years, the earning power of young men and women peaked in 1973 and fell sharply. By 1989, real earnings for young men age 25 to 34 had recovered only to 80 percent of their 1973 high. Real earnings for young women returned to their 1973 high only in 1986.

Growth in Single Parent Families: Between 1968 and 1988, the number of young families headed by single parents grew five times faster than the total number of young families. By 1988, more than one-quarter of all young households were single parent families.

Rising Poverty in Young Families: In 1988, 13.1 percent of our population, or 31,900,000 Americans, lived in households whose income fell below the poverty line. While both the number of poor and the poverty rate have declined since 1983, both remain above the low-point reached in 1978. For young families, however, the chances of living in poverty are increasing. In 1988, more than 20 percent of all families headed by persons under age 30 lived in poverty, compared to fewer than 12 percent in 1978. As a result, more than one-third of all children in young families were living in poverty in 1988. While most of these young families were headed by single women, about 30 percent were young married couples.

Persistent Unemployment: While unemployment rates have fallen for all workers since their 1975 high, the gap between unemployment rates for young people and for more experienced workers persists. On average, young workers are twice as likely to be out of work than are older, more experienced workers.

Growing Gaps in Earning Power: Wages for white collar workers have traditionally been greater than those for blue collar workers. In recent years, as the American economy has been restructured, the gap between white collar and blue collar wages has widened. As recently as 1983, median weekly wages for craft and kindred workers were nearly 90 percent of those for professional workers. By 1988, median weekly wages for craft and kindred workers had fallen to 77 percoent of those of professional workers, a 13 point drop in just six years. Over the same six years, the relative wages of operatives and laborers fell by a similar 13 percentage points.

strong basic skills and the ability to work as part of a team or to solve job-related problems that will become the norm as we move into the twenty-first century.

In the past, employers have turned to increased automation to improve productivity. They have focused investments on equipment and physical plant, rather than on the people who make the technology perform.

Employers will need to continue upgrading their plant and equipment. At the same time, competing on the high end of today's market will require greater investments in worker training. It will require not just more training, but changing the way we prepare workers to enter the workforce. It will also require changing the way workers are trained once they enter the workforce.

Most of the jobs that will be available in Wisconsin in the year 2000 will not require a university education. Nevertheless, improvements in productivity and quality across the economic spectrum will demand higher levels of skills than are currently available in the state's labor force.

We must provide all students with a strong general education embodying high performance standards and with an educational environment that expects them to achieve those higher standards. We must expand opportunities for high school students to obtain pretechnical and technical education.

But we cannot rely on educational reforms alone to increase the skills of our workforce. Seventy to eighty percent of the workforce that will take us into the twenty-first century are already at work. Along with upgrading educational standards and performance for new workers, we must also invest in training and retraining our existing workforce. Only by upgrading and expanding their skills and knowledge can we begin to meet the demand for the highly skilled front-line workers in Wisconsin.

Valuing Effort over Natural Ability Will lead to Higher Educational Achievement for All

In the U.S., more than in any other country in the world, educators, employers, and the general public believe that natural ability, rather than effort, shapes achievement. Low expectations of students and of educators lead to low achievement for too many segments of our society.

We must set higher standards of academic achievement for the non-university bound students who will make up the majority of our technical workforce, if they are to have the education preparation needed for technical training. Studies have shown that given the right conditions and encouragement to learn, most students can meet high performance standards. Educators and employers must work

together to set these standards and reward students who meet them with opportunities for employment and further training.

Building Linkages between Business, Labor, and Education

Creating a world class workforce for Wisconsin will require building new linkages between business, labor, and educators as well as reinforcing old ones. Unlike most other states, Wisconsin has a strong technical college system. From its beginnings, Wisconsin's Technical College System has been oriented to providing postsecondary education, vocational-technical training, and technical assistance to meet the needs of business and industry.

The task of creating a more highly skilled labor force will require commitments beyond greater investments in education and training. It will require the commitment of employers working together, and with educators, to identify skill competencies and standards needed in the workplace.

It will require employers and educators to provide a range of work-based learning experiences for students and workers. It will require the commitment of workers to embrace and support workforce training and retraining efforts. Finally, it will require the commitment of educators to seek the input of employers and workers in setting education standards and curriculum.

Education and Training Institutions Must Adopt a Customer Focus

To be successful in creating a more highly skilled workforce, education and training institutions must become more responsive to the needs of their customers — employers seeking more highly skilled workers, workers in need of retraining, and students seeking to enter or re-enter the workforce. The education and training provided must meet the standards sought by best practice firms. Training must also be accessible to all who seek it, with an emphasis on flexibility and rapid response.

Educators Must Measure Performance and Increase Accountability

Meeting the standards demanded by employers will require greater emphasis on mastery of workplace-based skill competencies. Students should be challenged to achieve these high levels of competency and be rewarded when they do.

But competency alone is not enough. Measurement must be performance-based, testing not only competency, but judgment in decision making and problem solving situations as well. Moreover, educators must not just assess individual students, but evaluate entire training programs to ensure that the outcome of the program meets the needs of students, workers, and employers.

Lifelong Learning Will be the Norm for all Workers

In a dynamic, healthy economy, new technology and new ways of organizing work require a workforce and employers who actively embrace change. This change brings with it the need for renewing and upgrading old skills and learning new ones. Gone are the days when mastery of a single set of skills could see a worker through his or her working life. Today, employers must provide continuing training and encourage workers to seek out other opportunities to obtain new skills and knowledge. Similarly, all workers, not just those who want to get ahead, must accept the need to engage in lifelong learning.

World Class Competition Demands Both a Passion for Excellence and Teamwork

Competing in today's global economy demands a passion for excellence in the board room, in the workplace, in the classroom, and in the home. Employers in Wisconsin have a choice and we all have a stake in the outcome. They can continue to pursue a strategy in the world marketplace aimed at cutting the costs of production by relying on increased mechanization, mass production, and low skills. The resulting lower real wages most Wisconsin workers will be able to command will continue to drive down their standard of living.

But a different future — one in which highly skilled workers can command higher wages — is possible. Creating this future will require employers to reorganize their workplaces to demand more from their workers, from educational institutions, and from students seeking to enter the workforce. Choosing a high skill/high wage strategy will permit business and industry in Wisconsin to compete in the high end of the world market for goods and services. But employers cannot do it alone.

Educators, leaders in business and industry, and front-line workers will need to join forces to create and sustain a high skill/high wage economy. Together, they will have to identify skill needs, to overcome skill deficits in the existing workforce, to make training available when and where it is needed, and to improve the skills, knowledge, and attitudes of new workers. Students will need to form new commitments to working toward higher skill levels in return for rewards in the workplace. Parents must be committed to putting education first, providing educators with the support they need and students with the environment and encouragement they need to succeed. Finally, state policy makers must be willing to pursue initiatives that place a priority on technical training and education.

The Commission's report is divided into three sections:

Recommendations, the first section, contains the Commission's findings and suggestions for improving the skills of Wisconsin's workforce and strengthening the state's Technical College System. ***Chapter 2, Building a World Class Workforce,*** describes strategies to upgrade the skills of the existing adult workforce. ***Chapter 3, Educating the Workers of Tomorrow,*** contains recommendations for improving the education experiences of our future workers.

Background, the second section, presents the Commission's assessment of conditions giving rise to its recommendations. ***Chapter 4, Workforce Demographics,*** describes the changing composition of Wisconsin's workforce. ***Chapter 5, Industrial and Occupational***

Dynamics, describes the changing composition of the state's industrial structure and occupational outlook.

Charges to Stakeholders, the third section, sums up the Commission's findings and recommendations. ***Chapter 6, Building an Agenda for Change,*** highlights changes we will need to make as a community to create a world class workforce for our state. It also points to our shared responsibilities in creating a high skill/high wage economy to ensure Wisconsin's prosperity.

RECOMMENDATIONS

2. *Action Plan for Building A World Class Workforce*

Across Wisconsin leaders in business and industry have begun to express concern about the skill levels of our workforce. As the workforce ages and a large group of older, highly skilled workers retires, employers are beginning to experience shortages of skilled labor. The limited availability of skills among their remaining front-line workers is hampering their ability to compete effectively.

The roots of the problem are complex. As older, more highly skilled workers leave the workforce, the supply of new workers is shrinking. New workers frequently lack not only experience, but basic and technical skills needed in the workplace as well. But the declining supply of skilled new workers is just one reason employers give for their lack of competitiveness. At the same time, they are faced with the need to implement new technologies and ways of organizing work that demand higher skill levels and broader skill requirements for all workers.

One way employers in Wisconsin are addressing this problem is by hiring experienced workers away from other firms. Clearly, firms relying on this strategy can be successful only in the short run. Longer term solutions lie in changing the attitudes of employers, workers, and educators towards the provision of on-going training for all workers.

These longer term strategies require:

employers and workers to raise their expectations about technical and occupational education and the competencies it can impart;

employers to increase the amount of training provided to their own front-line workers;

employers, workers, and educators to work together to increase the skills and knowledge that new workers bring to the job.

The Commission found broad consensus across the state that worker training and basic education must be strengthened. Employers cited the need to expand and improve the training available through technical colleges, high school vocational programs, apprenticeship and other work-based learning programs, and federal and state job training programs to improve the job-specific skills of their front-line workforce.

The Commission was charged with developing strategies to ensure that employers in Wisconsin enter the twenty-first century with the workforce they need to compete in the world marketplace. This chapter presents the Commission's recommendations for upgrading the skills and knowledge of those already at work.

These recommendations center on two issue areas: ***(a) identifying skill requirements in the workplace and (b) addressing training needs of the workforce.*** For each recommendation, the Commission also proposes a number of strategies needed to implement the recommendation.

Identifying Skill Requirements in the Workplace

By top international standards, most American workers are not well trained. While American firms spend on average about one to two percent of their payroll on training, much of the formal training they provide focuses on managerial and professional staff. The typical front-line employee is more likely to be trained on the job simply by watching other employees. When front-line workers do get formal training, it most often provides them with specific skills needed to run new equipment or to function in a new production environment.

In contrast, our competitors in other countries generally emphasize broader skill development for all employees — professional, managerial, and skilled laborers. Employees in firms overseas are much more likely to be involved in training at any given time in their work lives than are their American counterparts. Some of the training overseas workers receive is formal class work. Much more training is offered in the work setting, but is designed to offer more broadly-based skills than the job-specific training provided to American workers. Most employees in large Japanese firms, for example, rotate through jobs in various parts of the company in a deliberate strategy to develop broad understanding knowledge of the company and of how their own performance affects overall operations.

Employers in Wisconsin are beginning to recognize the need to improve the training offered to their front-line workers. But before they can undertake more aggressive programs of worker training, they must clearly identify the changing skill requirements in their workplaces. They must communicate their needs to trainers and educators. Finally, they must develop a plan for integrating training efforts with on-going operations.

The faculty and staff of Wisconsin's technical colleges and the state's employers are natural partners in designing and implementing new training programs. Worker training and retraining are integral to the mission and activities of the state's Technical College System. The sixteen technical colleges provide customized training and occupational instruction tailored to meet the needs of employers. What is missing, however, is a concerted effort on the part of the Technical College System to bring employers and workers together to plan and promote programs for broad skills development.

In the past, American firms were able to compete in the world market for mass-produced goods by outproducing their competition. Cost remains an important factor in the global marketplace, but as other countries have rebuilt their economies and educational systems, our competitive advantages in mass production have been eroded.

Today, we are competing in markets that are more likely to involve batch

Policy Recommendation #1: More Wisconsin employers must adopt new technology and methods of organizing work. To support this effort, technical colleges must facilitate employer leadership and participation in worker training and retraining.

rather than mass production. In batch production, shorter runs and more customized products mean more time devoted to product design and setup compared with mass production. Batch production has its counterpart for service providers in the need to offer a greater range of services tailored to individual customers.

Reorganizing Work to Meet New Standards of Competition

Meeting and beating the competition for customized products and services requires attention to new standards of excellence. Firms across Wisconsin and the nation must retool to provide quality products that meet the needs of the customers. Firms also must produce a wide variety of customized products to meet the individualized needs of consumers. And they must meet new standards of timeliness and convenience.

Meeting these needs while maintaining productivity growth requires not only the adoption of new flexible technology, but changes in the organization of work and in the skills and knowledge of workers. What is involved is a total reorientation and redesign of the workplace to improve operations to better meet the needs of customers. Emphasis is placed on improving the efficiency of customized production through appropriate use of workers and technology. Successful firms are flattening out their managerial structure, pushing more decision making authority down to front-line workers.

New, flexible technologies and organizational formats require employees to be more flexible and better trained. While some firms in Wisconsin have made the commitment to changing the way they organize work, most have not. Creating and maintaining an economy in Wisconsin which competes at the high end of the world market, where high skills and high productivity command high wages, requires the commitment of business and industry as a whole to new ways of doing work and to continual renewal and upgrading of the skilled labor force.

Best practice exists in firms all over the state. In response to questioning from the Commission, substantial numbers of employers report investing in new technology, developing new products, entering new markets, participating in labor management councils, and implementing programs of total quality improvement. When questioned by the Commission, employers engaged in best practice were less likely to express satisfaction with the current skill levels of their workforce than were their competitors.

Individual employers and organized labor must make it a priority to expand awareness of the need for all employers to take these same steps to ensure long term competitiveness. Communicating this message must also become a priority of state policy makers and educators in our technical colleges and universities.

Reorganizing Work Leads to Changing Workplace Basics

As firms redesign jobs to implement new forms of workplace organization and technology, the basic skills workers bring to their jobs will become increasing critical. The kinds of jobs skilled front-line workers held in the past frequently required critical job-specific technical skills, but relatively low levels of basic skills. For these jobs, the traditional three R's — reading, writing, and arithmetic — were sufficient. Many unskilled and semiskilled jobs in factories and the service sector failed to reinforce even low levels of proficiency. As a consequence, a disproportionate number of front-line workers in Wisconsin and across the nation have poor basic skills by any standard.

Proficiency levels for traditional basic skills must rise if employers are to pursue a high skills/high wage strategy. Employers implementing total quality programs, for example, indicated to the Commission that they were dissatisfied with the mathematical skills of their workers. These employers were not seeking workers with only basic arithmetic competency, but those proficient in algebra. In their old jobs, these same workers had little need for algebra; as members of a work team, they must use algebra as an integral part of their job duties in implementing techniques such as Statistical Process Control.

Employers are also redefining what they consider the basic skills they expect workers to bring to the workplace. Respondents to the Commission's survey of key business sectors in the state indicated that possession of general computer skills, for example, is now the norm in many industrial, office, and service sector settings.

A number of reports prepared for national, regional, and state groups document the expanding definition of the new workplace basics. Figure 1 depicts the evolving set of skills identified by employers as workplace basics. Not surprisingly, many of these new workplace basics involve the kinds of skills that front-line workers need to operate more sophisticated technology. Others speak to the need for front-line workers to work together as problem solving teams, either on the shop floor or in the service sector. Still others speak to the new need for front-line workers to engage in lifelong learning.

Strategies
for
Policy Recommendation #1

Provide training for adopting new ways of organizing work and upgrading the state's workforce.

Set direction for worker training through employer consortia.

Establish joint Technical College/University of Wisconsin/independent college Applied Technology Centers to increase awareness of new technology and to provide assistance in plant modernization through assessment, planning, consulting, and training to implement off-the-shelf technological solutions.

Improve monitoring and evaluation of vocational-technical training to ensure it meets the needs of employers and workers.

Employers Cite Rising Skill Needs
in Wisconsin

Across Wisconsin, leaders in business and industry are expressing concern about the skill levels of our workforce. In November 1990, the Governor's Commission for a Quality Workforce asked Wisconsin employers about the changing skills needs of their labor force. The Commission surveyed employers from five industrial sectors: business services, health services, construction, and durable and nondurable manufacturing. The Commission chose these sectors because of their potential to offer high skill/high wage jobs to Wisconsin workers. We took care to include responses from owners and managers of firms of all sizes from all over the state. One thousand eight hundred and fifty employers generously gave of their time to share their insights with the Commission.

Increasing skill requirements are the norm in Wisconsin: Overall, three out of five employers anticipate that their workers will face raising skill requirements over the next five years.

Growing labor shortages stifle productivity: Across Wisconsin, nine out of ten employers surveyed report skilled labor shortages. Three out of four employers indicate that the declining supply of skilled labor stifles productivity in their operations. More than half of the employers surveyed say that finding workers ready to learn job-specific skills is a problem.

Poor basic skills: One in four employers rate the overall basic skills of their front-line workers as poor. More point to problems with writing, reading, and using fractions. Deficits in math skills, particularly in algebra, are hampering employer efforts to adopt new technology or implement quality improvement programs.

Few employers assess needs or provide training: Despite changing skill needs, few employers have formally assessed the skill levels of their workforce. Most employers continue to provide front-line workers with minimal training, preferring to hire skilled workers away from other firms than to provide substantial training themselves.

Figure 1

Studies Document Increase in Basic Skills Needed in the Workplace

Workforce Report / Desired Skill/ Competency	WORKFORCE 2000 (1987)	Building A Quality Workforce (DOL/DOE/DOC) (1988)	Workplace Basics (ASTD/DOL) (1988)	South Growth Policies Board (1989)	Michigan Employability Task Force (1990)	A World Class Workforce For Wisconsin (1991)
Reading and Comprehension	●	●	●	●	●	●
Written and Oral Communications Skills	●	●	●	●	●	●
Thinking, Problem Solving, and Decision Making	●	●	●	●	●	●
Computational Skills	●	●	●	●	●	●
Technical Skills	□	●	□	●	●	●
Flexibility	●	●	□	●	□	●
Ability to Learn / Adaptability		●	●	●	●	●
Positive Attitude/Motivation/ and Self-direction		●	●	●	●	●
Teamwork and Interpersonal Skills		●	●	□	●	●
Creativity		●	●	●	●	□
Understanding the "Big Picture"			●	●	●	●
Good Work Habits		●		□	□	●
Multicultural Skills		●			□	□
Scientific Knowledge				●	●	□
Career and Personal Development			●		●	●

● Explicitly mentioned in report □ Implied in discussion

Policy Recommendation #2: Technical colleges must upgrade occupational education to meet the growing needs of employers.

Employer Consortia to Support Training

Despite the need for higher levels of proficiency and expanded workplace basics, many employers appear unwilling to invest in general skill development. They fear losing the workers they have trained to their non-training competitors. Forming an industry-wide consortium to promote skills development is in the interest of all employers in that industry if the majority of employers are willing to participate.

Increased cooperation among competitors can increase their willingness to upgrade the skill levels of all workers. The resulting stronger pool of workers can then raise performance levels across the industry as a whole, improving international competitiveness, local prosperity, and job security.

Through industry-wide consortia, technical college faculty and employers can determine the kinds of skills and knowledge needed by skilled workers in their field. Consortia also can help to set higher standards for industry-wide training programs. By facilitating industry-wide consortia or strengthening existing professional associations, technical colleges can help employers exchange information about training requirements within their industry and improve communications between employers and educators.

Training consortia and trade associations can play an important role in promoting awareness of the need to adopt new ways of organizing work and upgrading the state's workforce. The quality improvement networks around the state provide an example of employer consortia at work. Though not industry-specific, these voluntary groups meet on a regular basis to share information and experiences. The focus of the groups is on strengthen the implementation of total quality programs by all employers in the state.

Consortia organized around training needs can help smaller businesses to reduce the costs of training. By sharing the costs of developing common training materials, contracting for instructors, or financing a training facility the consortia can help individual employers to pool their resources. In addition, consortia can be used by larger firms and their supplier networks to develop, share, and benchmark training approaches and common workplace practices.

Applied Technology Centers Can Promote Modernization

Redesigning the workplace for greater competitiveness may center on adopting new technologies. Making these changes is not only costly, but can also be traumatic for workers and managers alike. By cooperating to establish a series of Applied Technology Centers around the state, the Technical College and University of Wisconsin Systems could mobilize existing resources to assist business and industry in making needed changes.

Through outreach efforts, these centers would provide business and industry in the state with opportunities to explore the use of off-the-shelf technology to improve day-to-day operations. Staff from the centers and from the cooperating institutions could assess current practices and work with firms to develop plans for increasing productivity and quality through better use of new technology, work reorganization, and worker training.

Through the Applied Technology Centers, private consultants, faculty and staff from the Technical College and University Systems, and personnel from private colleges and universities in the state could also work with employers to implement the planned changes. In addition, center staff could expand and market existing outreach efforts offering seminars on 'best practice' in key industrial sectors to increase awareness of proven new technology and its applicability to specific situations.

Improving Evaluation of Technical College Training

Training costs employers time and money. Greater attention must be paid to demonstrating that training improves the bottom line. Educators must be willing and able to show employers and workers the positive returns of training for a more highly skilled workforce. Educators must also be willing to devote resources to improving their curricular and instructional services to better reflect the skill and knowledge requirements identified by business and industry. Technical college staff need to survey former students and their employers to discover ways to improve training for entry-level positions. They must also develop assessment and evaluation tools to assist employers in designing long term, on-going training efforts.

Outcome-oriented Education Leads to Workplace Readiness

Business and industry want workers who are workplace ready. Meeting the standards demanded by employers will require increased attention to mastery of workplace-based skill competencies. Technical college students must be challenged to achieve these high levels of competency and should be rewarded when they do.

But competency alone is not enough. Measurement must be performance-based, capturing not only competency,

but judgment in decision making and problem solving situations. In addition, educators must not only assess individual students, but also evaluate entire training programs to ensure that the outcome of the program meets the needs of students, workers, and employers.

Business/Education Partnerships Will Improve Instructor Competency

Effective teachers need to know not only how to teach, but what to teach. Whether their primary job is preparing individuals for technical careers or working with employers to upgrade the skills of the existing workforce, technical college instructors need increased opportunities to interact with individuals from business and industry. These contacts should be designed to improve the existing skills base of instructors and to help them to learn about advances in their occupational areas.

These opportunities might include:

- increasing the number of instructors placed in business and industry settings to upgrade their skills;
- assigning skilled workers from business and industry as mentors to VTAE instructors;
- more broadly-based and focussed participation by representatives of business and industry on technical college occupational advisory committees.

Infusing Best Industrial Practices into Instructional Programs

Technical College curriculum and instruction must be designed to meet the needs of business and industry for a well-trained workforce. Aligning the curriculum to match the best practice in business and industry will require closer and more focussed cooperation between employers, skilled workers, and technical college faculty. It will also require on-going commitments between business and industry and the technical colleges to reassess curriculum and re-evaluate instructional goals in light of changing requirements on the job. Similarly, improving instruction will require increasing contacts between technical college students and skilled workers. These contacts might include increasing work-based learning experiences for students preparing to enter an occupation and using technical staff from business and industry to teach specialized segments of the curriculum.

Strategies for Policy Recommendation #2

Expand and support outcome-oriented, competency-based educational objectives for all Technical College programming, including occupational preparation, basic skills instruction, and industry-based technical training.

Expand professional growth opportunities for technical college faculty and staff.

Incorporate best practice training standards and practices into the instructional programs of the Technical College System.

Addressing Training Needs of the Workforce

Upgrading the skills of Wisconsin's workforce will require a concerted and continuing effort on the part of employers and the technical colleges. Along with figuring out what skills workers will need for business and industry in Wisconsin to regain its competitive edge, on-going training for all workers must become a priority of Wisconsin's employers. A team effort, pairing technical college staff with employers and workers, is needed to ensure success.

Competency Testing of New Hires to Encourage Skill Development

Firms across Wisconsin have begun to use pre-hiring screenings to assess the basic skill levels of applicants for employment. Many employers are using the General Aptitude Test Battery (GATB) offered through the Wisconsin Job Service as a means of assessing basic competency for employment. Others have used technical college resources for a wide range of employee screening functions. Still others have used similar tests to identify candidates eligible for pre-employment training to improve job readiness.

These efforts should be expanded to include all persons applying for permanent positions in business and industry in the state. In addition, firms should put in place or expand voluntary programs to assess training needs of existing employees. The goal must be the development of training programs to upgrade the skill levels of the entire adult workforce in the state.

Just as employers must be willing to invest in worker training, workers must be willing to invest in themselves. For many workers in the U.S., their last contact with formal education and training occurred when they left school to begin full-time work. Not only are their basic and technical skills inadequate to meet the demands of a world class economy, but in many cases they face the need to gain new skills and knowledge. Successful training strategies will require overcoming these fears. They will also require helping many workers to relearn how to learn.

Increasing Employer-sponsored Skills Training

In addition to assessing worker skills, employers need to increase their commitments to offering training to their entire workforce. While the budget of employer-sponsored training is growing in the U.S. as a whole, the relative expenditure per non-managerial worker continues to lag behind that of other countries engaged in the same kinds of business.

Policy Recommendation #3: Wisconsin's employers and workers, in partnership with the technical colleges, must reskill the existing workforce for a more competitive economy.

Employers in many firms in Wisconsin are responding to the need for higher skilled workers by attempting to hire them away from other firms. As the number of new entrants to the labor force continues to shrink over the next decade, poaching of highly skilled workers will prove increasing difficult. Instead, firms seeking higher skilled workers will need to increase their efforts to promote skill development of their existing adult labor force.

Work-based learning strategies offer one way for firms to increase their commitment to skills development. Across the state, a growing number of employers are using a variety of tools to promote and provide skills training for their workforce. These include tuition reimbursement programs as well as increased contracting with the technical colleges to provide continuing education opportunities for workers. Frequently, technical college course work is tailored to meet the needs of individual employers and may be offered as customized training. In other cases, a sequence of courses from a technical college associate degree program is offered on-site for worker enrichment. Workers who enroll and complete the sequence earn technical college credit toward a degree, diploma, or an Advanced Technical Certificate.

For workers in the skilled trades, participation in apprenticeship through an established state program of indentures and related training has long been the path for broad skill development. As the state's employers restructured their operations in response to economic pressure in the mid-1970s and early 1980s, employer interest in sponsoring apprenticeships fell. With a surplus of skilled workers available in the labor force, employers saw no need to enroll new apprentices. As the pool of skilled workers begins to shrink, employers must begin to expand training of new workers through formal apprenticeships.

Employers must also expand on the job training to provide on-going work-based learning experiences for their employees. Evidence from around the world and from the state's own apprenticeship programs suggests that formal classroom training alone cannot provide the breadth of skills and knowledge needed in a high skill/high wage economy. As job duties are broadened and managerial structures flattened, all workers need to exercise more of the kind of judgment, problem solving, and decision making that have characterized our most highly skilled craft workers. Employers will need to provide more workers with opportunities to participate in work-based learning programs which resemble apprenticeship programs. Like apprenticeships, these programs will require a mix of work-based learning experiences, classroom instruction, and close mentor-worker relationships.

Technical College/University Partnerships Can Improve Work-based Learning

Infusing best industrial practices into the technical college curriculum must be recognized as just the first step in their wider adoption across business and industry in the state. Adoption of these techniques gives increased responsibility for decision making and problem solving to front-line workers. They also create the need for new managerial techniques and greater collaboration between engineers or other professional staff and front-line workers. Changes will be needed, not just in the skill levels of front-line workers, but in the skills and knowledge of engineers and managers as well.

Professional and preprofessional programs in the business and engineering schools of the University of Wisconsin System are already in place to provide managers and engineers with some of the education and training they will need to function the workplace of the future. Little effort is currently being made, however, to coordinate the education and training of new and experienced professionals with that of front-line workers.

Technical college faculty must coordinate their efforts to upgrade curriculum with their counterparts in the University of Wisconsin System. Both groups need to begin identifying ways to increase the role managers play in work-based learning for front-line workers. UW faculty need to incorporate into their existing programs greater emphasis on the role of the manager in providing on-going work-based learning experiences for front-line workers. Programs offered through the proposed joint Technical College/University of Wisconsin Applied Technology Centers could provide a vehicle for needed collaboration.

Lifelong Learning Will Become the Norm

Creating and maintaining a high skills/high wage economy will require continuing commitments by employers and workers alike to lifelong learning. New ways of working and the changing skills required to compete in today's marketplace mean that training and upgrading in the workplace must become a way of life for all workers in the U.S. Nevertheless, the commitment of employers to work-based learning in the U.S. continues to lag behind that of their competitors around the world.

Too often, employers continue to see training as a disruption in their normal

Strategies
for
Policy Recommendation #3

Expand competency testing of new hires and existing employees.

Expand employer-sponsored skills training through increased continuing education for adult workers on technical college campuses, through private and in-house training efforts, expanded apprenticeship programs, and through Workplace Learning Centers.

Increase collaboration between Technical College and University of Wisconsin faculty to promote work-based learning.

Expand awareness of the need for lifelong learning.

Best Practice Firms in Wisconsin
Seek High Skill Workers

Employers across Wisconsin are changing the way they do business. A sizable group, about twenty percent of those responding to the Commission's survey, are what we call "best practice" firms. Managers in these firms report making a number of significant changes in their operations. Responding to new standards of competition, these employers are not only making greater use of new technology and expanding their operations, but also adopting new management practices. These include: introducing work teams; establishing labor-management councils; and adopting new quality systems or quality improvement processes. Best practice firms in Wisconsin can be found in all five industrial sectors surveyed by the Commission for a Quality Workforce. Best practices are also reported by firms ranging in size from fewer than 50 employees to more than 250. Medium to large-sized manufacturers are most likely to fall in the best practice group, smaller health services and construction firms, the least likely.

Compared to other firms the Commission surveyed, best practice firms are

- more likely to report difficulties in finding skilled workers;
- one and a half times more likely to attribute skill shortages to rising skill needs in their workforce, to workers placing a low value on education, and to a poor educational system;
- more likely to rate the basic skills of their workers lower than do others;
- more likely to report that technological changes in their operations have increased the skill needs of their workers;
- more likely to have increased the number of front-line workers and to anticipate adding more new workers;
- more likely to be working with technical colleges to develop the skill base of their employees;
- only slightly more likely to report providing more training to technical and production workers;
- more likely to have spent a greater share of their training dollars developing the basic skills for their front-line workers.

Policy Recommendation #4: Technical colleges must work with business and industry across the state to improve access to training.

operations. As a result, they try to minimize the amount of time involved and to limit the skills that their workers acquire. Too many employers opt for a short term strategy, instead of working together to increase the overall skill level of the workforce.

One barrier to lifelong learning and increased work-based learning experiences is the reliance of American business and industry on formal classroom education for general skills development. Classroom training can play an important role in occupational preparation and upgrading. Once workers are in the workforce, however, obtaining additional formal education is difficult. Employers who rely on worker-initiated on-campus classroom training force workers to juggle work, family, and community responsibilities to develop the skills they need to keep up in the workplace. While any kind of training requires a commitment of time and effort by workers, employers and the technical colleges need to work to decrease the barriers that discourage workers from seeking addition training and basic or technical education.

Flexibile Schedules Can Aid Technical College System

Making education and training opportunities available on a flexible schedule convenient to employers and workers must become a priority for the state's technical colleges. By expanding outreach efforts and embracing new modes of service delivery, educators will be better able to serve both small and medium-sized firms and those remote from technical college facilities. By working with employers to develop training consortia, technical colleges will be in better positions to provide cost effective education and training programs to small and medium-size firms.

Changes in the expectations of technical college faculty are key to improving the flexibility of technical college programming and offerings. Technical colleges must be able to mount programs when and where they are needed. Though safeguards must be in place to prevent overloads, teaching in a technical college cannot be viewed simply as a 9 to 5 job.

Individualized Learning Techniques Can Improve Access to Training

Self-paced instruction can increase access to the state's educational and training resources. By offering students the opportunity to learn at their own pace, open entry/open exit programs can be designed to fit individual learning styles and needs. Current offerings available through the Technical College System are limited, but growing.

Employers and technical college instructors must work together to create additional self-paced instructional materials. These materials might take the form of workbooks and correspondence courses, televideo courses, or interactive computer-aided instructional programs. Open laboratories on technical college campuses also provide students with opportunities to work at their own pace on skill acquisition as their schedules permit.

Currently, most self-paced instruction through the Technical College System is offered on-campus in adult basic education programs. The greatest payoff from self-paced instruction will come from increased off-campus offerings in outreach centers and at work-sites.

Self-paced instruction is a mainstay of distance learning techniques. These techniques can increase access to basic education and skills training for small and medium-sized firms that could not otherwise afford the cost of in-house training. In addition to expanding the availability and use of self-paced instruction, employers and technical colleges need to work together to increase the use other distance learning techniques. These techniques include broadcast televideo and interactive instructional television.

Workplace Learning Centers Facilitate On-site Training

As many firms in Wisconsin have discovered, training for those already in the workplace may best be done on-site through Workplace Learning Centers. For larger firms, establishing a Workplace Learning Center is a natural outgrowth of increased attention to training. Providing workers with an on-site instructional facility makes employer commitments to greater skill training more concrete. On-site facilities also help to increase voluntary participation.

Workplace Learning Centers can be designed to offer workers opportunities to obtain personalized assessment of training needs as well as instruction in basic skills, pretechnical education, and technical training. Garnering the support of organized labor and the local technical college to assist in establishing and operating a Workplace Learning Center is key to the success of implementing new technology and plant redesign.

For a growing number of employers across the state, peer counselors, drawn from the ranks of front-line workers, are widely acknowledged as an important factor in the success of Workplace Learning Centers. These peer counselors provide role models for other workers seeking to upgrade their skills through the Center. Peer

counselors also provide other workers with information about the need for training, the Center's operations, and the kinds of services available through the Center.

Expanding Opportunities for Minority Participation in High Skills/High Wage Careers

The training efforts needed to reskill Wisconsin's labor force should provide the state's minority populations with new opportunities for employment in skilled occupations. Minorities make up a small but growing share of Wisconsin's population and labor force. Few minorities already in the workforce have the education and training needed compete for high skill/high wage jobs. The Governor's Commission for a Quality Workforce joins with the Governor's Commission on Minority Participation in Vocational-Technical Education in recommending that the Technical College System develop and implement comprehensive plans to recruit and retain minority students for occupational education programs leading to high skill/high wage employment.

Future Directions for Training the Workforce

Creating a world class workforce for Wisconsin requires a continuous effort to upgrade the skills and knowledge of the existing adult labor force. Previously, employers had relied on new workers with better educational preparation to infuse new skills into the workplace. As the pool of new workers continues to shrink over the next ten to twenty years, new strategies are needed.

The Commission for a Quality Workforce believes that the changes we are proposing:

- encouraging and facilitating the adoption of new technology and methods of organizing work;
- upgrading occupational education to better meet the needs of employers;
- encouraging partnerships between employers, workers, and the technical colleges to provide needed training;
- improving access to technical college training for adult workers

provide a workable agenda for the future.

Strategies for Policy Recommendation #4

Expand outreach efforts to business and industry through adopting more flexible schedules for training provision.

Expand options for individualized learning of basic skills and technical/occupational instruction through the use of distance learning and open entry/open exit programming.

Establish additional Workplace Learning Centers.

Expand and enhance strategies for marketing and recruiting technical college programs to adults.

Form training consortia to pool resources of small and medium-sized firms.

Increase minority student enrollment and completion of technical programs leading to placement in high skill/high wage careers.

3. Action Plan for Educating the Workers of Tomorrow

Our public school system provides the basic education and training most new workers bring to the workplace. In Wisconsin, about half of all high school students seek postsecondary education or training immediately after leaving school. The other half enter the workforce directly from high school. While some return later to seek postsecondary education and training, most enter the labor force full-time with few skills and little occupational preparation.

Like their more experienced counterparts already in the labor force, students leaving school confront a workplace that has changed dramatically over the last twenty years. In the past, young people who left school found many unskilled and semi-skilled manufacturing jobs to provide them with easy entry into a life-time of work.

Many of these jobs have disappeared. New technology has simply eliminated some unskilled jobs. Firms, in search of lower labor costs, have relocated production facilities and lower skilled jobs to other parts of the country or overseas. While many manufacturing jobs remain, they have become more complex and demanding. Employers need workers with the skills, knowledge, and motivation to compete with workers around the world. New workers with few skills and little training are more likely to find themselves in low wage, dead end jobs.

The Commission for a Quality Workforce believes that we can no longer afford to squander the resources that new workers could bring to the workplace. The people of Wisconsin have a long tradition of investing heavily in the education of our citizens. Since the beginning of twentieth century, state policy makers and citizens alike in Wisconsin have shared a vision of an educated populace as the primary economic resource of state. As we move into the twenty-first century, the Commission believes that Wisconsin's primary and secondary schools and technical colleges must refocus their efforts to ensure that all citizens have the education and training they need to enter and succeed in the labor market and in life.

Many of our students simply are being short-changed by the existing system of public education. Comparisons of American students with those from other countries with advanced economies indicate that our students are not as well-prepared academically. In international tests of basic educational preparation in mathematics, science, language arts, and social studies, our best and brightest students consistently perform worse than the average student in a host of countries with higher educational standards. Not only are their standards higher, but the vast majority of their students are expected to satisfy these higher standards.

While our college-bound students are less prepared than their counterparts overseas, our non-college-bound students fare even worse. Because we do not expect them to succeed, too often they do not. Unlike non-college-bound students in other developed economies, they are not expected to take a challenging high school curriculum or to meet high educational standards. Most students in the U.S. remain in school longer than their counterparts overseas, but still leave school lacking basic skills and knowledge mastered by all students in other countries.

Only about thirty percent of the jobs in our state's economy in 2000 will require education and training at the university level. Many of the rest will require the kind of education and vocational preparation available through the state's Technical College System. Yet we have no clearly defined path in our high schools to prepare students to enter technical education.

Few youth in our state who are not university-bound achieve the high levels of general educational preparation needed to succeed in today's workforce or to participate effectively as citizens and members of their community. Too few of our non-college-bound youth receive the education that would enable them to participate in postsecondary education and training without remediation. Too few of our non-college-bound students are receiving education and training while in high school to prepare them to go to work. Nor are American students given the occupational preparation or help that they need to smooth the transition from school to work. Instead, many end up floundering through a series of low paying, low skilled jobs for a period of five to ten years while they gain the experience and work habits employers desire.

We all have a stake in improving the education and training of our youth. Whether they are bound for college or not, they are the future workforce of the state and a valued resource for our communities. As part of our deliberations, the Commission for a Quality Workforce focussed on the issue of improving the education and training new workers bring to workforce. The Commission also examined the issue of improving the transition non-college-bound students make from school to work.

We believe that a consensus is emerging among the education, labor, and business communities in our state that we must do more with the majority of our youth that will make up tomorrow's skilled workforce. No one involved in education can be complacent — not the public schools, not the technical colleges or the universities, and certainly not employers or workers. All must commit to a joint endeavor to ensure the workforce of the future.

Creating effective schools and educational systems is a complicated process. Across the country, members of the business community, educators at all levels, state and local policy makers, and ordinary citizens have been grappling with the problem for many years. Many are coming to the conclusion that simply imposing higher standards on school systems does not automatically lead to more effective schools.

Meeting higher standards may raise the quality of education experience avail-

Policy Recommendation #5: Wisconsin's system of public education must adopt outcome-oriented, competency-based educational objectives throughout the primary and secondary grades.

able in a school. But schooling effectiveness needs be measured in terms of the outcomes of the educational process. Do students leave school with the skills and knowledge they need, with the ability to use these skills in meaningful ways, and with the self-esteem and confidence necessary to succeed in the workplace, in further schooling, and in the community?

Concerned about the effectiveness of our public education system, Governor Thompson appointed a citizen's group in 1990, the Commission on Schools for the 21st Century. Chaired by businessman Ody Fish, this Commission examined problems related to the delivery of education. In their recently issued report, the Commission on School for the 21st Century presented its recommendations for creating more effective schools in Wisconsin.

The Commission for a Quality Workforce was charged by Governor Thompson with identifying strategies for meeting the needs of business and industry for skilled workers in the 21st century. Because schools play an important role in this process there is some overlap between the issues we have considered and those examined by the Commission on School for the 21st Century.

Our recommendations for improving the education and training new workers bring to the labor force focus on three issue areas: (a) improving educational performance, (b) preparing students for technical careers, and (c) improving the transition from school to work. For each recommendation, the Commission also proposes a number of action steps needed to implement the recommendation.

Because of the overlap in our interests, some of our recommendations parallel those of the Commission on School for the 21st Century. In some cases, we find ourselves wholly in agreement with the recommendations of the Commission on School for the 21st Century. This is true in particular with regard to the need to adopt a model of school performance that focuses on the outcomes of the educational process. In other cases, our recommendations expand upon points discussed by the Commission on School for the 21st Century, but not fully addressed by that group. In still other cases, our recommendations differ from those of the Commission on School for the 21st Century, though these differences lie more in tone and emphasis than in substance.

Improving Educational Performance

Over the last twenty years, college attendance has become a ticket to success in the U.S. economy. Overall, the gap in earnings between those attending and completing college and those who do not continues to widen. In addition, workers who have attended college are less likely to lose their jobs. When college educated workers are unemployed, they are less likely to remain out of work than those with less education.

Not surprisingly, for many of us, gaining admission to college has come to be the primary measure of educational success for American high school students. Parents, educators, and policy makers frequently rate high schools in terms of how many graduates seek higher education. Across the country, rising or falling average scores on college admissions tests such as the ACT or SAT have become barometers of school success.

The demands of modern society require all of us to cope with more complex issues, to be better informed, and to view education as an on-going process of lifelong learning. Much of the focus of school reform in the U.S., however, has centered on improving the performance of college-bound youth.

The Commission agrees with this desire to raise educational standards, expectations, and performance. The Commission believes, however, that higher levels of educational attainment are needed for all students, not just those bound for college. Efforts for school reform must be directed toward improving the performance of all youth. We also believe that these efforts can succeed only if they are part of a larger program to change the way we prepare all youth to enter the workforce and assume their roles as adult members of our communities.

Experience in numerous settings has shown that student achievement is strongly linked to the expectations of parents, teachers, and peers. Whether we are parents, business people, educators, policy makers, or ordinary citizens, we must work to change the climate of norms and values that shape educational expectations and performance in Wisconsin.

Together, we must work to create a climate in our families, our schools, and our communities that fosters expectations of academic achievement success for all students. In addition, we must also work together to ensure that the mastery of basic educational outcomes by all students becomes the central focus of our educational system.

Together with the Commission on Schools for the 21st Century, the Commission for a Quality Workforce believes that we must refocus Wisconsin's system of public education to better meet the needs of the entire community. Much of the effort at school reform in Wisconsin over the last decade has been directed at increasing the resources available in

schools. Evaluation of school effort by the Wisconsin Department of Public Instruction has focussed on meeting a set of standards such as instructional time, curriculum offerings, testing, and others.

Standards are necessary to ensure that educators and students have the resources they need to engage in effective schooling. But standards alone are not enough. We join with the Commission on School for the 21st Century in supporting the idea that schooling should be judged in terms of the outcomes of the process. Schools should be evaluated in terms of how well they do at imparting to students what they need to know to be effective members of our society.

Strategies for Policy Recommendation #5

Establish goals and obtain agreement in the community on essential learner outcomes.

With input from educators, the business community, and the public, establish a statewide framework for curriculum and student assessment for all primary and secondary schools in the state.

Establish a continuous process of assessment of pupil performance.

Adopt new rules governing teacher preparation, certification, and staff development to implement outcome-oriented education across the state.

Develop programs to foster links between educators and the business community.

Establishing Essential Learner Outcomes to Create More Effective Schools

Creating a shared vision of the knowledge, skills, competencies, and attitudes students should acquire in the course of their educational experience must be the first step in increasing the educational performance of all students. This shared vision describes what the Commission on Schools for the 21st Century calls ***essential learner outcomes***.

Building statewide consensus on what makes up these essential learner outcomes and developing curriculum to provide the needed skills, knowledge, and attitudes is crucial to creating more effective schools and increasing educational performance. The members of the Curriculum and Standards Committee of the Commission on School for the 21st Century have suggested a model of essential learner outcomes which includes seven major categories: (1) academic foundations, (2) analytical skills, (3) human relations, (4) personal growth, (5) global participation, (6) career and occupational awareness, and (7) citizenship.

Establishing a Statewide Framework for Curriculum and Assessment

Schools can be judged effective only when we agree beforehand on what the outcomes should be and then develop a process for measuring these outcomes.

The set of essential learner outcomes described above should provide local school districts with a statewide framework for developing curriculum and assessment tools to measure their effectiveness in preparing students to function as citizens of the state.

We agree with the Commission on School for the 21st Century that public education must remain primarily the enterprise of local school districts. Effective and successful schools across the country share the strong support of the communities they serve. Clearly, control over the curriculum is an important part of local control of education. But we also think that the state's interest in educating all of its citizens requires a statewide focus to define and evaluate the essential components of a student's education. Figuring out how to impart the needed skills, knowledge, and attitudes to students in a particular setting must remain under the control of those who know the community best — parents, teachers, school administrators, local policy makers, and interested citizens.

Assessing and Documenting Student Performance Throughout Primary and Secondary Education

Changing the way we assess student performance is a necessary part of reorienting our primary and secondary education system. In a competency-based curriculum, student progress is based on demonstrating mastery of the material to be learned. As a result, much more information is available to teachers to document student progress. An Individual Pupil Portfolio containing samples of a student's work throughout his or her educational experience could help teachers, parents, and potential employers to assess student progress. Unlike standardized tests, student portfolios can also point to individual areas where students might need more assistance in mastering the essential learner outcomes.

Refocussing Our Educational System on Outcomes and Performance

Just as we must expect more from our students, we must be creative in ensuring that students are given the opportunities and the assistance they need to meet these new, higher standards. Teaching is an art. Some teachers can reach a wider group of students more effectively than others. But all kinds of styles and approaches can be useful in different settings.

Although there is little agreement on how teachers should teach, we do know what makes teachers effective. Effective teachers bring to their classroom enthusiasm and a thorough knowledge of their subject matter. Their instructional materials are well-prepared and clearly presented. Most of

Policy Recommendation #6: Educators, the business community, and state policy makers must establish attainment of Certificate of Initial Mastery as a prerequisite for eligibility for employment or training opportunities for high school students.

all, they know how to stimulate their students to learn. We need to develop and employ strategies in our schools that reinforce effective teaching and to improve the instructional skills of all of our teachers.

Reorienting our educational system to focus on outcomes and competency-based learning will place great demands on teachers who are accustomed to other modes of teaching and assessment. We agree with the Commission on School for the 21st Century that we need to rethink how our university system prepares students to enter teaching, the requirements for teacher certification, and the kinds of professional development experiences available to experienced teachers and other school personnel.

Most teachers and school personnel have had little personal experience with competency-based education. The state's educational community must begin working together to develop competency-based curricula and instructional methods. The educational community must also design and implement teacher preparation and professional development programs that provide new and experienced teachers with opportunities to develop the skills needed to teach successfully in an outcome-based educational system.

Building Links Between Education and the Business Community

We also need to increase links between educators and the business community. One way to accomplish this is by encouraging members of the business community to volunteer their time to serve as mentors to teachers and students, as tutors in academic and applied technology programs, or as resources or instructors for specialized portions of the curriculum.

Other ways of fostering contacts between the school and business community include business-sponsored academies to provide teachers and school personnel with opportunities to learn about new technology and changing requirements for skills and knowledge in the workplace. Direct placements of teaching staff in positions in local companies in the community provide yet another way to increase contacts between educators and the world of business.

Refocussing primary and secondary education on the outcomes of the educational process is one part of a larger effort to raise the educational performance of all students. We must also set higher standards that all students would be expected to achieve during the course of their schooling. One way of doing this is to set a new educational performance standard for all students, benchmarked to the highest in the world. Most students should be able to meet this standard by the end of tenth grade at about age 16.

Once a student demonstrated the basic proficiencies and competencies needed to meet this standard, he or she would be awarded a Certificate of Initial Mastery. Obtaining this certificate would permit high school students to pursue a number of alternative paths which would be available in a redesigned high school curriculum.

Students would work toward meeting this standard in a series of competency-based courses tied to essential learning outcomes. These courses would provide students with the skills, knowledge, and attitudes needed to move into more academic or applied learning. The course work would also prepare students to participate in work-based learning experiences in the last two years of high school.

Mark Tucker, of the National Center on Education and the Economy, argues in America's Choice: High Skills or Low Wages, that we need to institute a standard such as this nationwide. A number of other states have expressed interest in Tucker's work. The Governor of the State of Washington, for example, recently proposed that students eliminating credit requirements, and instead, granting a high school diploma to students who passed a statewide competency test. The Commission for a Quality Workforce believes that educators, leaders in the business community, and state and local policy makers should take the lead in developing and implementing a new educational performance standard for the students of Wisconsin.

Restricting Employment of High School Students to Improve Performance

The Commission believes that our future prosperity as a state depends on improving the educational performance both of new and of experienced workers. Imposing a new educational standard on high school students can work only if there are powerful incentives to meet that standard. The entire community must be willing to communicate to students the importance of achieving and demonstrating higher levels of performance in academics, social skills and attitudes, and work readiness.

Exhortations by parents and teachers will not be enough. The leaders from business and industry and from organized labor must endorse these goals. Employers in every community in the state must also demonstrate their commitment to high levels of student performance by refusing to hire students who have not achieved a Certificate of Initial Mastery or are not making progress toward its

Policy Recommendation #7: Technical colleges and high schools must substantially improve alternative educational programs for students at risk of dropping out of high school and for adults in need of high school instruction.

achievement. This step alone would send a strong signal to our young people that we are serious.

We must also agree to restrict the number of hours high school students work. Evidence from across the country and in Wisconsin indicates that far too many students come to school unprepared or too tired to take part in schooling. These students have not had time to do assignments or to get enough sleep because they were working too many hours or too late at night. For too many students, short term gains in earning are leading to long term losses in potential earnings as their educational performance suffers.

The Commission supports the efforts of state policy makers to examine what we think are needed changes in existing child labor laws. Our entire community must make a commitment to our youth by supporting restrictions on hours and times of employment for persons under age 18. We cannot afford to waste the years when students' efforts should be directed to schooling by allowing them to work excessive hours.

The traditional secondary school setting has best served students bound for university. We have a highly developed curriculum and counseling system which prepares students to seek baccalaureate degrees, but most high school students will neither attend nor complete a four-year degree program.

The Commission believes that we need to restructure the high school curriculum to provide more focussed learning experiences for all students. But even when redesigned, the secondary school system may not be able to meet the needs of every student.

All youth belong in school. When it is clear that the secondary school setting is not meeting the needs of particular students, educators, parents, and students must be willing to try alternatives. Some school districts in the state already offer alternative education programs to students at risk of leaving school without a diploma. These options need to be expanded to serve all of the students who could benefit from them.

Educational Options Can Lead to Improving Educational Performance

Statutes currently permit students age 16 and over to attend programs at the technical colleges, in lieu of attending their local high schools.

Under the state's compulsory education law, students under age 18 can enroll in a technical college program only with the approval of their local school district. Parents need to have a greater say in determining an appropriate setting for their children.

The Commission supports the Technical College System's efforts to seek statutory changes to permit any high school student over age 16 to attend technical college full or part-time to work toward earning a high school diploma. Technical college programs should be designed to meet the state requirements for high school graduation. Students completing high school through a technical college program should be granted a regular high school diploma from the technical college.

High school students enrolled in technical colleges would pay no tuition, but state funding would follow them until they completed the requirements for a high school diploma. Further instruction beyond high school would be financed as for any other student. Eligibility would not be based on level of achievement, but on interest and willingness to attend.

Although any student could exercise this option, students with an early career focus would be most likely to benefit from this option. All students would be assessed prior to beginning classes and provided instruction appropriate to their knowledge, skill, and competency levels.

Students meeting prerequisites for postsecondary technical instruction would be able to take courses towards associate degree or vocational programs. Remediation for high school aged students in the technical colleges would be provided as for any adult student through classroom instruction and self-paced, computer-aided or video-aided instruction.

Mandatory Technical College Experiences for Student At Risk

Exposure to technical college programs might help students who are not succeeding in traditional or other

Strategies
for
Policy Recommendation #6

Design and implement changes in curriculum and assessment leading to granting of Certificates of Initial Mastery.

Adopt needed changes in child labor laws to restrict hours of employment.

alternative school settings to clarify their own educational goals. Compulsory attendance laws in Wisconsin require students to remain in school until age 18. Current statutes also require high schools to identify students at risk of leaving school without receiving a diploma and to offer these students special assistance to improve attendance and performance.

Statewide, Wisconsin has one of the lowest high school dropout rates in the country. On average, about one in seven students fails to complete high school in Wisconsin. Averages, however, are deceptive. Most dropout or habitual truants are concentrated in the more urbanized areas of our state. In Milwaukee, for example, only about one in two students who enroll in ninth grade high school earns a high school diploma.

Many students leave school with unrealistic ideas of their futures. Earning a high school diploma once a student falls behind or leaves high school is much more difficult. Yet without a diploma, our youth face a bleak future and little hope of economic self-sufficiency. Despite the low statewide dropout rate, the Commission believes that we cannot afford to be complacent about students who fail to complete high school.

Students thinking about leaving high school need to be fully informed as to their options in the labor market and in school. A simple way of doing this would be to incorporate a mandatory experience at a technical college as part of existing programs for at risk students.

Students identified by high school personnel should be required to attend a one to three week assessment and orientation program at the technical college. The program could help students to take responsibility for clarifying their educational and life goals. It could also provide them with an opportunity to consider attending technical college programs as an alternative to traditional high school.

Second Chance Programs Must Continue to Offer Adults an Opportunity to Earn a High School Diploma

Even if we succeed in reducing the proportion of students who fail to complete high school, the pool of adults who have not finished high school will remain large. As the skills and knowledge required to hold a job become more complex, earning a high school diploma or completing an equivalency program will become more important. Currently, second chance programs available through the technical colleges are providing about 25,000 adults in Wisconsin with the opportunity to seek a diploma or its equivalency.

Twenty-five percent of the students enrolled in basic skills or adult high school programs are under twenty years old. But sixty percent of enrollees in second chance programs are between twenty and forty. New programs directed at improving educational performance in high school should reduce the number of students leaving school without a diploma. Nevertheless, a large pool of adults in Wisconsin will continue to need a second chance to earn a high school diploma or to prepare for postsecondary education and training.

Innovative and Accelerated Programs Could Shorten Time Spent in Remediation

Across the Technical College System, we need to shorten the time adults spend in acquiring the basic skills needed to succeed in postsecondary education and training. The Commission for a Quality Workforce joins with the Commission on Minority Participation in Vocational-Technical Education in calling for innovation in the delivery of developmental education in the Technical College System. Changing our expectations and performance standards in primary and secondary education will go a long way towards eliminating the need for remedial and developmental education of postsecondary students.

Despite our best efforts, however, some students will still leave school without the study skills and knowledge they need to succeed in postsecondary education and training. Currently, for many minority students leaving high school, the need for extensive remediation prevents or discourages them from enrolling in or completing occupational programs leading to high skill/high wage employment.

The Technical College System should develop incentive funding to support the development and implementation of innovative instructional programs to accelerate remediation. Approaches that might prove useful include:

- using competency-based approaches that build on a student's life and work experiences;
- using alternative teaching methods such as self-paced or work-site, experience-based instruction;
- incorporating the building of self-

Strategies for Policy Recommendation #7

Seek statutory changes to permit interested students 16 or older to attend trechnical college on a full or part-time basis to complete high school.

Provide mandatory technical college experiences for students participating in statutory at risk programs.

Expand second chance programs in technical colleges to permit non-completers to return to school to earn a high school diploma or complete a high school equivalency program.

Develop and expand innovative and accelerated basic skills development programs throughout the Technical College System.

Policy Recommendation #8: High school curricula must be redesigned to prepare non-university bound students for technical careers.

esteem and self-motivation into program curricula;

- using other organizations and agencies to provide instructional and support services directly related to student needs.

Preparing Students for Technical Careers

Over the next twenty years, our nation's population and workforce will grow more slowly than at any time since the 1930s. The pool of young workers entering the labor market will shrink. Women and minorities will continue to increase their share of the labor force. With Wisconsin employers already experiencing skilled labor shortages, we cannot continue business as usual in our public schools.

To meet the challenge posed by these trends we must begin preparing a greater proportion of our youth for technical careers in business and industry. The Commission for a Quality Workforce believes that we must create a coherent education and training system to meet the needs of the seventy percent of our youth who will not graduate with a four-year college degree.

Wisconsin, unlike many other states, has a strong technical college system. Preparing new workers for technical and entry-level positions is a central mission of our Technical College System. What is missing is a strong linkage between the technical colleges and the kinds of schooling offered in the state's secondary schools. While we have strong programs for preparing students to enter the state's university system and other baccalaureate institutions, we have no comparable set of programs available across the state to prepare students to enter the Technical College System.

Many students enter the Technical College System underprepared to attempt or successfully complete postsecondary education and training programs. Currently, statewide about twenty percent of high school students enroll in the Technical College System at age nineteen, in the academic year following the graduation of their high school class.

One in three of these students is enrolled in some form of remedial or developmental work. A few nineteen year old students with limited proficiency in English are enrolled in English as a Second Language programs. Many of the nineteen year olds enrolled in technical college remediation courses left school prior to completion and are returning to earn a regular diploma through adult high school programs. Others are enrolled in adult basic education programs that may lead to a high school equivalency diploma. (See Figure 2.)

Most disturbing are the students who enroll in the Technical College System having completed twelfth grade, but still in need of remediation. These students make up about twelve percent of all nineteen year olds in the Technical College System. Some arrive at the technical college without the study skills they need to succeed. Some need to take high school courses to meet prerequisites for enrolling in their chosen occupational programs. Others come with more serious deficiencies, having left high school with a diploma, but without the basic skills and knowledge they need to enroll in postsecondary programs.

For all of these students, the technical colleges offer an opportunity to continue their educations, to make up these deficiencies, and to prepare for careers. The technical colleges will probably need to continue to play a role in offering second chance programs to students who have left high school underprepared for further education and training. We believe, however, that it is time to design an educational system that does not leave a significant proportion of our students underprepared to gain the skills, knowledge, and training they will need.

Designing Alternative Paths for High School Students

Currently, high schools provide students bound for university with a curriculum designed to satisfy the entrance requirements for liberal arts and pre-professional baccalaureate degree programs. We need to design and put in place a parallel high school curriculum to prepare high school students for technical education in the way that students are now prepared for baccalaureate education.

This Tech Prep curriculum will enable high school graduates to make a successful transition to postsecondary education or to work. As it is evolving in Wisconsin, Tech Prep combines a common core of applied academic courses and technical courses at the high school level. Through these integrated curricula in broad occupational areas, students will acquire the higher level basic skills required in the workforce. Moreover, students will come to the technical college prepared for more speedy completion of an associate degree, diploma, or certificate in a specific occupational area.

Introducing a Tech Prep path for high school students is not a new idea. Individual high schools and school districts in Wisconsin have been experimenting with different Tech Prep models for several years. Over the last

year, a joint task force between the Technical College System and the Department of Public Instruction has been studying issues related to Tech Prep, successful policies and practices of Tech Prep models, and existing practices that hinder implementation of programs such as Tech Prep. It is time to begin implementing Tech Prep curricula statewide.

The Tech Prep path we are recommending is not unique to Wisconsin. The latest revision of the federal legislation funding vocational education programs included, for the first time, a section authorizing federal funding for Tech Prep programs. Educators, communities, and policy makers across the country have come to the same conclusion that we have: we must introduce a more focussed approach, such as Tech Prep, to prepare non-university bound students for work and for further education and training.

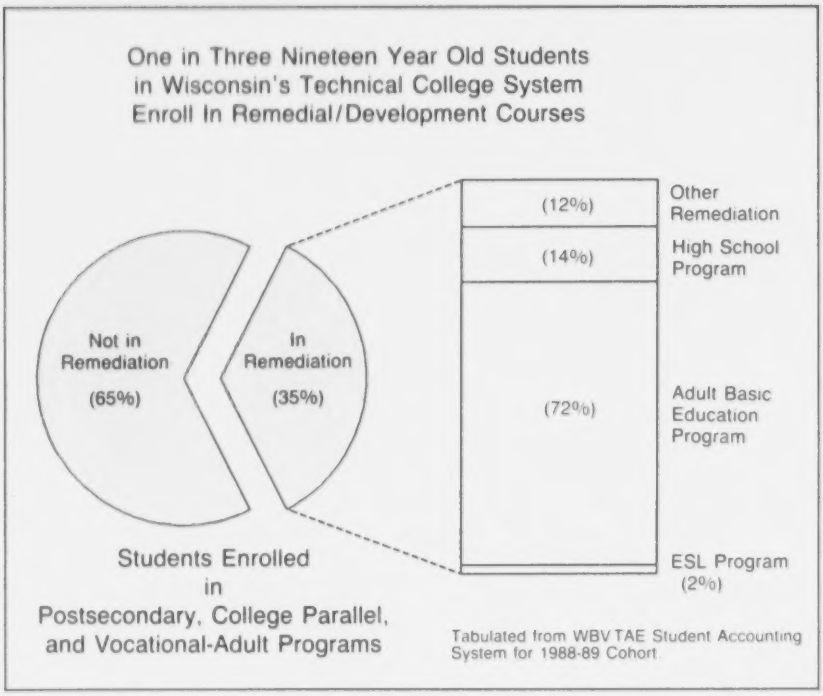


Figure 2

Focussing the High School Curriculum on Educational Outcomes

Redesigning the high school curriculum should help to refocus students on the outcomes of their studies. It should also improve performance in the last two years of high school. Providing upper level students with opportunities to explore and develop their interests in actual career settings should provide high school students with incentives to take school seriously.

In the existing high school curriculum, students not bound for university follow one of two paths through high school. About forty-five percent of all high school students follow a general education path, filling their school days with a combination of general education and personal/hobby courses. National studies indicate that general education students spend nearly half their time in school in an unfocussed mix of developmental and personal-service courses including physical education, arts and crafts, home economics, and work experience.

Vocational education programs provide the remaining twenty percent of high school students with an opportunity to explore career areas and to prepare for some entry-level positions in the workforce. Well-designed vocational education programs can provide students with stimulating and rewarding high school experiences. National studies indicate, however, that most students enrolled in high school vocational education programs are no more focussed in their studies than are general education students.

High school vocational education programs can provide significant occupational preparation and increased earnings for those who seek employment in occupations related to their training. But nationally, fewer than one half of all non-college bound students who pursue vocational education in high school actually obtain related employment. As a consequence, they never realize the earnings potential that can accrue to program graduates.

The Tech Prep approach we support would redesign the existing general and vocational education programs in Wisconsin high schools. In contrast to the unfocussed studies of most high school students following a general education or vocational education, Tech Prep programs could provide focussed alternatives.

After obtaining a Certificate of Initial Mastery, interested high school students would be eligible to enroll in one of several kinds of Tech Prep programs offered through their school district in conjunction with their local technical college. We recognize that the mix of programs and specific curricula could be expected to differ from one school building or district to the next in response to community interest and labor market conditions. The Commission strongly believes, however, that a portion of the high school curriculum should provide youth with clear pathways to enrollment in technical college programs, to entry-level positions in the labor market, or to apprenticeships in the skilled trades.

In a **Tech College Prep program,** for example, students would take a sequence of courses jointly designed by high school and technical college faculty. High school students successfully completing the course sequence would have the skills, knowledge, and competencies needed to enter and complete a two-year associate degree program at the technical college

in a specific occupational area. Building on the basic proficiency mastered in grades K-10, the Tech College Prep program would combine a common core of applied academics and technical subjects in an applied setting.

A typical model of Tech College Prep is the **2+2** sequence where students spend the first two years of the program (grades 11 and 12) taking English, social studies, math, and science courses as well as introductory level vocational-technical education courses. After high school graduation, they enter the technical college as regular students, continue to take more occupation-specific vocational-technical courses and to complete applied academic courses in communications, science, social studies, math, or electives. The high school portion of the sequence might include school-supervised work experience.

Students enrolled in an **Occupational Prep program** would take a sequence of courses designed by high school faculty with the assistance of representatives of the business community. Students successfully completing the program would have the skills, knowledge, and competencies needed to obtain an entry-level job in a semi-skilled or skilled occupation. They would also be prepared to obtain further education and training through post-secondary programs at a technical college.

Building on strong basic proficiencies in mathematics, science, communications, and technology, an occupational prep program would emphasize the development of occupational skills while continuing to impart applied academics. The high school portion of the sequence would include school-supervised work experience.

Students with an early career focus in a specific occupational area would begin taking the necessary sequence of courses in 9th, 10th, or 11th grade depending on interest and length of the program. In the 12th grade a typical student would participate in a one to two semester school-supervised work experience entailing three to four hours of paid work each day in addition to one hour of daily related instruction, and two hours of applied academic courses to complete the requirements for a high school diploma. Upon completion of the program and high school graduation, the student would be prepared to enter the labor force full-time. Students might choose to obtain additional schooling to advance within an occupation or to change occupations.

Students enrolled in a **Trade Prep program** would take a sequence of courses jointly designed by employers, high school faculty, and technical college faculty to provide high school students with the competencies needed to enter and complete a skilled apprenticeship program leading to journeyman status in an occupational area. The high school portion of the program might include a school-supervised work experience with an adult worker-mentor. After earning a high school diploma, the student could choose to be indentured as an apprentice, begin working and attend related instruction with other apprentices.

The trade prep program is intended for students with a career-focus on an apprenticeable occupation. Participation in the work-experience and apprenticeship portion of the program would require employer-sponsorship of the student. To fully implement a trade prep program, employers would need to expand their current efforts in training apprentices.

Technical College Options for High School Students

The Tech Prep options we have outlined provide one set of alternative paths for high school students. For some students, other paths might be more appropriate. The Commission has already indicated its support for one option: attending technical college in lieu of high school.

Currently, fewer than 1,000 students officially attend the technical colleges in lieu of high school. More than 12,000 other students of high school age are enrolled in technical college associate degree, vocational, high school, and developmental courses in any given school year. While the high school setting should be appropriate for most students, high school students and their parents should be allowed to choose to participate in technical college programs on a full or part-time basis.

Another alternative which should be more widely available to high school students are Technical College Advanced Standing Certificates. Many high school districts in Wisconsin are already working with technical college districts to provide high school students with the opportunity to earn technical college credit and advanced standing in an occupational program while still enrolled in high school. In cases where articulation agreements have been worked out between high school and technical college districts, students who have completed a designated high school vocational-technical course for credit can also earn an advanced standing certificate.

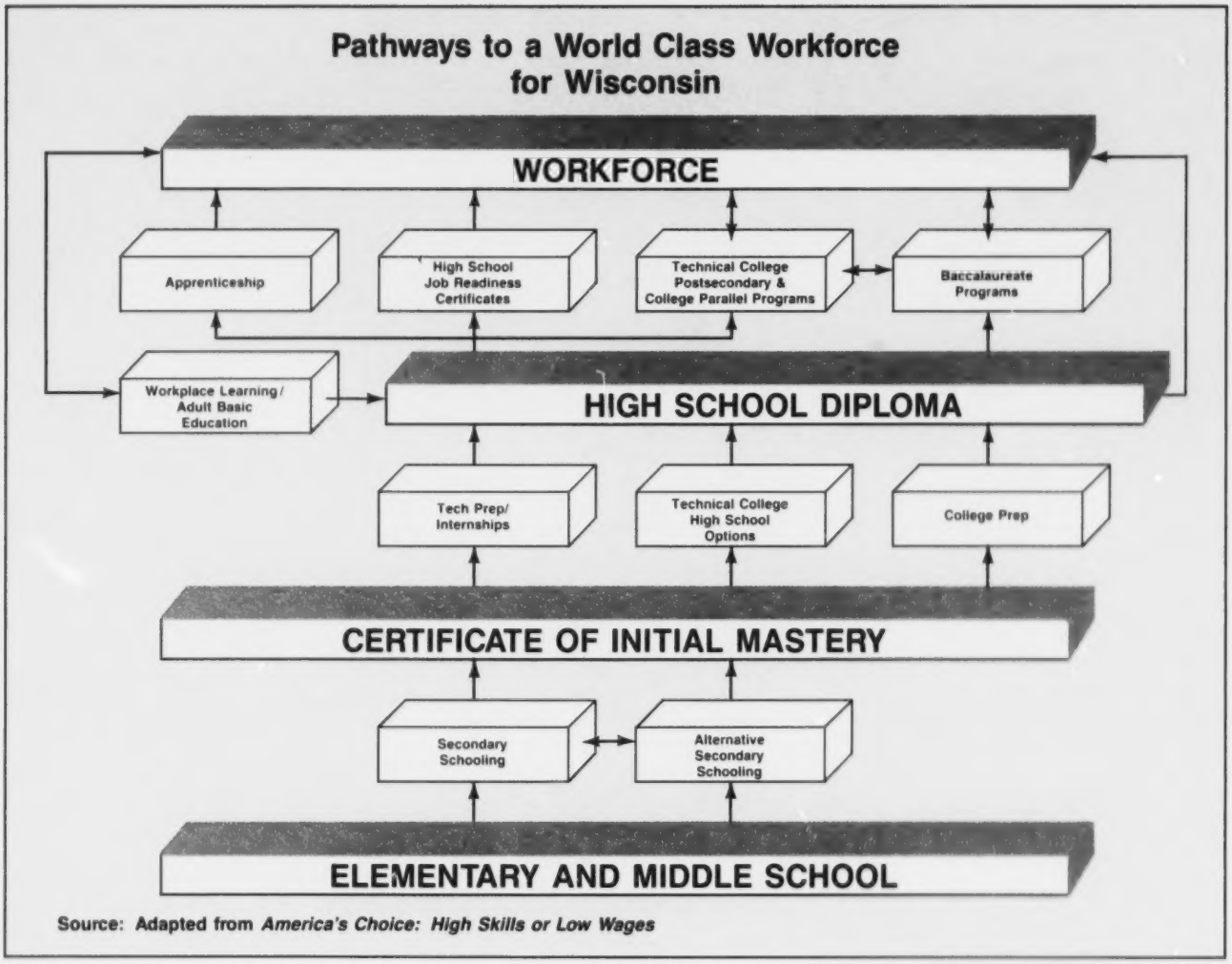
Content of the courses is identical to that of the same course offered at the technical college, though the course may be offered differently, such as at a

Strategies for Policy Recommendation #8

Establish Tech College Prep/Trade Prep/Occupational Prep options with appropriate resources for high school students statewide.

Expand existing apprenticeship programs for high school graduates.

Permit interested students 16 or older to attend technical college on a full or part-time basis to complete high school.



Source: Adapted from *America's Choice: High Skills or Low Wages*

slower pace or as self-paced instruction. To receive credit, high school students taking the courses must demonstrate the same levels of competency required of their technical college counterparts. Obtaining advanced standing permits high school students to complete an associate degree or vocational diploma program in an occupational area more rapidly if they choose to enter a technical college upon high school graduation.

Improving the Transition from School to Work

American high school students are much more likely than their counterparts in other developed countries to have a job or be seeking paid employment. Some students work to supplement their family's income. Others work primarily to finance postsecondary education. But most students work for immediate consumption. Their earnings go toward auto insurance, car payments, clothes, and entertainment.

Working has become the norm for teenage high school students. At any one time, more than half of all students in the last two years of high school are working. Because youth move in and out of the labor market more readily than adults, most have some work experience by the time they leave high school.

For students not headed for postsecondary education or training, the work experience they gain while in high school could provide them with some of the skills, knowledge, and competencies they will need when they leave school to enter the labor force full-time. Too often, for these students, their work experience leads from one dead end job to another. Most find low skill jobs in retail sales, food service, clerical and unskilled manual work.

These jobs and the young people who hold them make up the youth labor market. The jobs available in the youth labor market differ sharply from those available to students who go on to obtain postsecondary education and training. For these students, the adult labor market offers positions leading to careers. Career-entry jobs offer employment in positions requiring specialized skills and knowledge, paying enough to support an independent adult or family, offering job security and benefits, and providing opportunities for advancement.

Many non-college-bound youth find that when they leave school the jobs avail-

Policy Recommendation #9: Educators and counselors in high schools must work with employers to improve the transition from school to work for students entering the workforce directly.

able to them are not much different from the low paying, low skill jobs they held while in school. Most remain in the youth labor market. The jobs they obtain have low entry requirements and offer little training. Few are likely to be hired directly after school for the kinds of jobs for which employers provide extensive on-the-job training. Only after a number of years in the labor force, frequently moving from employer to employer, do these young adults finally obtain a job that offers a career path and the potential for higher earnings.

Our society offers youth seeking postsecondary education and training many forms of help in making the transition from full-time student to full-time worker. Cooperative education programs, internships, apprenticeships, and campus placement offices, all provide postsecondary students with assistance in gaining relevant work experience and access to employers who want to hire them.

For the forty to fifty percent of high school students not seeking postsecondary education, our communities offer little help in facilitating the transition from school to work. Instead, we rely primarily on parents to provide youth with leads and assistance in entering the full-time labor market. This solution works best for youth whose parents themselves are successful in the labor market. For the increasing proportion of youth being raised in poverty, parents can provide little more than encouragement.

Between the mid-1960s and the mid-1980s, as large groups of students left school and entered the workforce, the labor market expanded rapidly with low skill, low wage jobs to absorb new workers until they could be integrated into the more experienced labor force. Much of the knowledge new workers have of the labor market is gleaned from their own experiences, or that of their peers, or older siblings. Many have come to expect a prolonged experience of five to ten years in low skill, low wage jobs similar to those they held while in high school. They have adapted their expectations, their goals, and their behavior to the youth labor market. When they do seek jobs which offer a career ladder, employers are reluctant to hire them.

The Commission believes that this situation must change as rapidly as possible. Declining birth rates beginning in the mid-1960s translate directly into fewer students moving through the school system and entering the labor market between 1985 and 2020. Employers in Wisconsin are aware of the shrinking pool of new workers. Few, however, have begun to take the steps necessary to cope with impending shortages of new workers.

School/Business Partnerships Lead to More Meaningful Work Experiences

We have come to expect schools to solve many of the problems of our society. Schools have an important role to play in smoothing the transition to work for non-college-bound youth. But schools cannot solve the problem by themselves. They need the active involvement of the business community. Employers must be willing to offer youth more responsible positions at an earlier age. And employers and educators must work together with others in the community to see that new workers are prepared to take on the responsibilities that come with career-entry jobs.

Working while in school can have some positive effects. For the most part, however, researchers who study teenage workers have documented declines in attendance, grades, and involvement in extracurricular and community activities for teens who work during the school year. The problem, they argue, is that the work experiences of teens are most often unsupervised by adults who care about them. The work high school students seek and find requires few skills. These dead end jobs offer few opportunities for young workers to develop more skills or knowledge or to advance along a career path.

Schools need to establish partnerships with those in the business community who employ their students. The educational community needs to provide leadership within the broader community to encourage employers to integrate the work students do with their educational experiences. School personnel need to help employers design jobs that provide student not just income, but opportunities to learn as well.

The Case for Work-based Learning

In most other developed countries, young people not bound for higher education spend a significant portion of their secondary schooling in work settings. Unlike young American workers, these students participate in structured work-based learning programs, gaining the skills and knowledge they will need to enter an occupation.

Much of what these students are learning on-the-job are the high order basic skills:

- working as part of a team;
- problem solving;
- independent decision making;

and positive attitudes toward work that are crucial for employment in high skill/high wage jobs.

For many years, American employers have relied on extracurricular activities sponsored by schools and community groups to foster the development of these skills and attitudes in young people. Vocational student organizations such as 4H, FFA, DECA or Junior Achievement provide a limited number of high school students with opportunities to take part in skill building and leadership activities. Broader-based groups such as Boy and Girl Scouting serve a similar role for other students. Unfortunately, a minority of high school students participate in these groups.

Experience from other developed economies suggests that for many high school students, higher order basic skills and a strong work ethic are best taught on-the-job in work or work-like settings. Stephen Hamilton, in Apprenticeship for Adulthood: Preparing Youth for the Future, indicates that the best work-based learning systems in other countries:

- exploit workplaces and other community settings as learning environments;
- link work experience to academic learning;
- give youth constructive roles as workers and learners; simultaneously
- foster close relations between youth and adult mentors.

To meet the needs of Wisconsin's youth and employers, the Commission believes that we need to provide high school students with expanded opportunities for work-based learning of this sort.

Internships For Adulthood

As part of our proposal to overhaul the secondary school curriculum, the Commission proposes the creation of a program of internships in business and industry settings for high school students. These internships would be available to any student in good standing beginning in the junior year of high school. They would form an integral part of the Tech Prep curriculum offered to upper level students who had attained a Certificate of Initial Mastery.

Just as Tech Prep programs must vary in response to community interests and labor market conditions, a number of models are possible for implementing internships. Under a typical model, students enrolled in an internship would spend one day a week in a paid job setting. Students would also spend one day a week at a technical college campus or at their high school in instruction related to their internship. Three days a week the student would attend high school, taking classes in academic subjects (i.e., English, social studies, science, mathematics) and electives.

After high school graduation, depending on interests and preparation, the student might choose to pursue further occupational education at the technical college in a one or two-year program. Participation in further education would make the student eligible for higher levels of pay within a firm. The continuing student would be on a path of certification leading to granting of 'master' status within the firm within four or five years of graduation from high school. Industries would develop certification standards for "master" status.

The internship program we are proposing is modeled on existing cooperative education programs. It would provide students with educational experiences in work settings, facilitated by employers and adult worker mentors. The internship is intended to provide students with the general occupational skills and competencies needed to be successful and productive workers, not with specific job training. Employers and educators generally rate cooperative education as embodying the best vocational education programs in our schools. This kind of work-based learning experience should be made available to as many students as possible.

Parental Involvement Required

Parental involvement is key to making internships work. Most parents are involved in their children's education at the primary school level. Parental involvement usually drops off sharply as students leave the early grades and enter secondary schooling. The Commission believes that students will benefit most from internships if their parents are involved in designing, supporting, monitoring, and evaluating the work experience along with school personnel, students, and employers.

Expanding Work-based Learning Might Require a Longer School Year

Many previous effort to improve the preparation of new workers have blamed schools for the problems graduates encounter as they move from school to full-time work. These critics have assumed that students flounder when they attempt to enter the adult labor market because schools have failed to teach enough academic

Strategies for Policy Recommendation #9

Establish school/business partnerships with all employers of high school students.

Expand availability of work-based learning experiences, including internships, for high school students.

Examine extending the school year and other alternatives to allow time for work-based learning in secondary education.

Implement Education for Employment curriculum in all school districts to improve career awareness.

Policy Recommendation #10: Educators and counselors in primary and secondary schools must improve career education for all students throughout their educational experience.

subjects and students have failed to absorb what they were taught. Their proposed solution has been to urge schools to provide more instructional time through longer school days or longer school years.

Youth learn in many different ways. More time in a traditional school setting may not be the best solution for all students. On the other hand, students in other countries do tend to spend more time in school or in learning situations than do American high school students. Taking students out of the class for a significant portion of their junior and senior years to participate in internships may lead to the need for a longer school year. Educators, together with state and local policy makers, should examine this issue to determine if increased participation in work-based learning will require lengthening the school year.

Implement Education for Employment Curriculum

One of the educational standards mandated by the Wisconsin Legislature in recent years concerns education for employment. This standard requires school districts to develop and implement educational programs throughout the primary and secondary grades to bridge the gap between school and the world of work. The standard requires involvement by members of the business community in program planning, development, and implementation.

The Commission wholeheartedly endorses the notion of education for employment. The reforms we propose can succeed only if the focus of the school community becomes preparation for life, including preparation for full participation in the work life of the larger community.

Meeting the requirements for the state's *Education for Employment* standard and the related standard on *Guidance and Counseling* places increased emphasis on career education. The model curricular framework we outlined includes career education as one of the seven major categories of essential learner outcomes. The outcomes we seek:

- greater knowledge of career alternatives;
- a stronger sense of participation in the life of the community;
- and the development of positive attitudes toward work

will all contribute to the work readiness of our youth.

Marketing Technical Career Paths to Students and Parents

The future economic prosperity of our state depends on the availability of a workforce with high basic skill levels, technical know how, and the willingness to view education and training as a lifelong process. Changes in the world and U.S. economies and in the future composition of the workforce mean we cannot continue life as usual. We must begin preparing more new workers to enter technical career paths directly, not five to ten years after high school. Labor market projections for our state tell us that a large number of good-paying jobs can be the future for Wisconsin if we choose it.

The business community and educators must communicate this story to parents and to students. Together, they must encourage more students to prepare for and to pursue technical training in high school through postsecondary opportunities in the state's technical colleges.

Active participation by employers and organized labor in career exploration activities and internships should send a powerful message to the rest of the community about their commitment to the education of new workers. In addition, the business community must also communicate more clearly to educators, guidance counselors, parents, and students the higher standards required in today's world of work.

Currently, only about twenty percent of a given high school class attends technical college directly after high school. Of these, nearly a quarter are there not for postsecondary education and training, but to work toward a high school diploma. Some students graduating through adult high school do continue in technical college to obtain occupational preparation. Most do not. Technical colleges need to improve the marketing of their postsecondary occupational programs to high school students and to their parents. Technical college staff should set goals for recruiting and retaining at least twice as many out of high school as they do now to meet the needs of employers for skilled workers in entry-level and technical occupations.

Expanding Technical College Experiences for High School Students

The proposals we have offered for redesigning the existing high school curriculum through the implementation of a Tech Prep curriculum will go a long way toward improved marketing for technical career paths. Another way of increasing the visibility of technical careers to high school students is to increase their exposure to technical college campuses.

During the first two years of high school, all students should be required to spend one to three weeks at a technical college campus. This precollegiate experience would be part of the career awareness and exploration

activities required obtain a Certificate of Initial Mastery.

While on campus, or as part of their course work leading up to the campus experience, the students would take part in guidance activities designed to assess career attitudes and interests. During the precollegiate experience, students would become familiar with the resources and programs available through the Technical College System. An integral part of the program would involve the high school students taking part in hands-on activities in technical college laboratories and classrooms.

Directions for the Future for Educating New Workers

Creating a world class workforce for Wisconsin requires new workers with the skills, knowledge, and motivation needed to compete in today's global economy. Our students must be expected to meet higher levels of educational performance. They need clear career goals and paths to reach these goals.

The Commission for a Quality Wrokforce believes that the changes we are proposing:

- implementing an outcome-based model of education;
- setting higher levels of educational performance;
- requiring Certificates of Initial Mastery;
- implementing Tech Prep curricula;
- establishing internships;
- expanding career exploration and career education programs

address these issues directly.

Strategies
for
Policy Recommendation #10

Improve and expand marketing of technical career paths.

Expand technical college experiences for high school students.

BACKGROUND

4. Workforce Demographics

Workers already in Wisconsin's labor force will carry us into the twenty-first century. Projections prepared by the Wisconsin Department of Industry, Labor and Human Relations (DILHR) indicate that 70 percent of the people who will be working in Wisconsin in 2000 are already in the labor force. (See Figure 3.)

DILHR projects the state's labor force will grow by only about 156,000 persons between 1987 and 2000. Nearly five times as many people will actually enter the state's labor force during this period. For the most part, these new workers will be replacing older workers leaving the labor force.

Women's Share of the Labor Force Will Continue to Grow

In 1960, women made up about 30 percent of Wisconsin's civilian labor force. By 1980, more than 40 percent of the state's workforce were women. By 2000, DILHR estimates that women will constitute 46 percent of the labor force.

Among new entrants, men will slightly outnumber women entering the labor force between 1987 and 2000. Nevertheless, women's share of the labor force will continue to grow. Because about 30 percent fewer women than men will leave the labor force between 1987 and 2000, women will increase their net share of the labor force.

Slower Labor Force Growth Expected As Fewer New Workers Enter the Labor Market

Wisconsin's labor force began growing more slowly in the mid-1980s. Estimates prepared by DILHR project the state's labor force to grow by only .5 percent annually between 1983 and 2000. In contrast, between 1963 and 1983, the state's labor force grew on average by 1.9 percent annually.

Record numbers of new workers entered the state's labor force between the mid-1960s and the mid-1980s. Women returning to the labor force after starting families provided one source of new workers. Most new workers, however, were young people going to work after leaving high school or college.

For twenty years, employers were able to choose new workers from among the large numbers of young people entering the labor market. A prolonged period of high birth rates from the mid-1940s until the mid-1960s fueled this ever-growing supply of new labor market entrants. Now, employers are beginning to experience a tighter supply of new workers. The generally lower birth rates since the mid-1960s have translated directly into fewer young people moving through school and into the labor market.

Help Wanted — Women

Employers have responded to the shrinking supply of new workers by encouraging women to enter and remain in the labor force for a greater part of their child bearing and child rearing years. In doing so, they are encouraging changes in the labor market participation of women that date from the mid-1960s. (See Figure 4.)

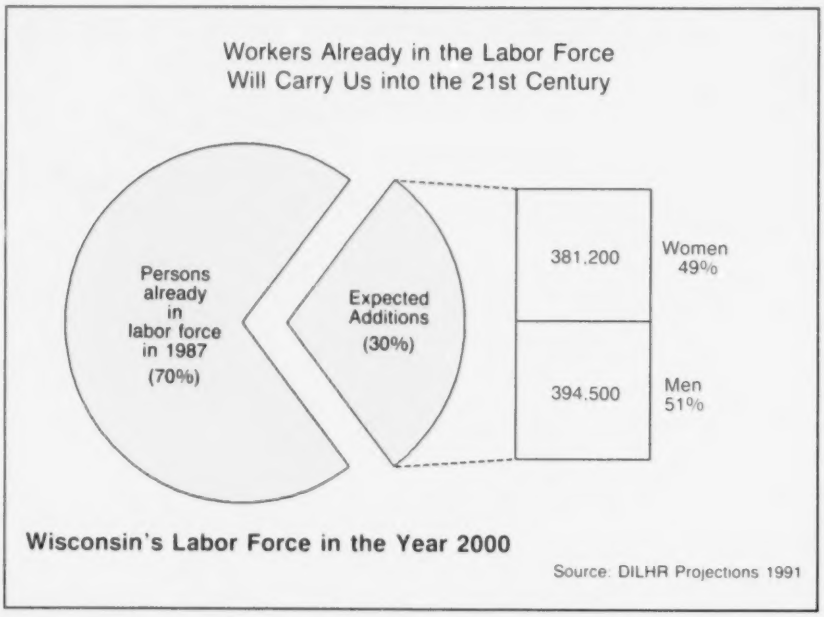
In 1960, about 40 to 45 percent of young women age 16 to 24 worked in the civilian labor force compared to as much as 80 percent of young men. Unlike young men, young women typically left the labor force upon marriage or to raise children. Even in 1960, however, many women re-entered the labor force as their children became more self-sufficient. In 1960, the likelihood of labor force participation for women peaked between ages 20 and 24 and again between ages 45 and 55.

Gradually, since the mid-1960s, a new pattern of labor force participation for women has emerged in Wisconsin and across the country. Now, young women are nearly as likely as young men to enter the labor force between age 16 and 24. In addition, fewer women leave the labor force during their child rearing years, or, if they do, most return within the first year after the birth of a child. DILHR projections estimate that 75 and 85 percent of all women age 20 to 54 will be working in the civilian labor force by 2000.

Help Wanted — Older Workers

Trying to extend the work life of existing workers, either by delaying retirement or by hiring retirees, is another way employers are responding to the shrinking pool of new workers. Despite highly publicized attempts to hire older

Figure 3


Workers Already in the Labor Force
Will Carry Us into the 21st Century
Persons already in labor force in 1987 (70%)
Expected Additions (30%)
381,200
Women 49%
394,500
Men 51%
Wisconsin's Labor Force in the Year 2000
Source: DILHR Projections 1991

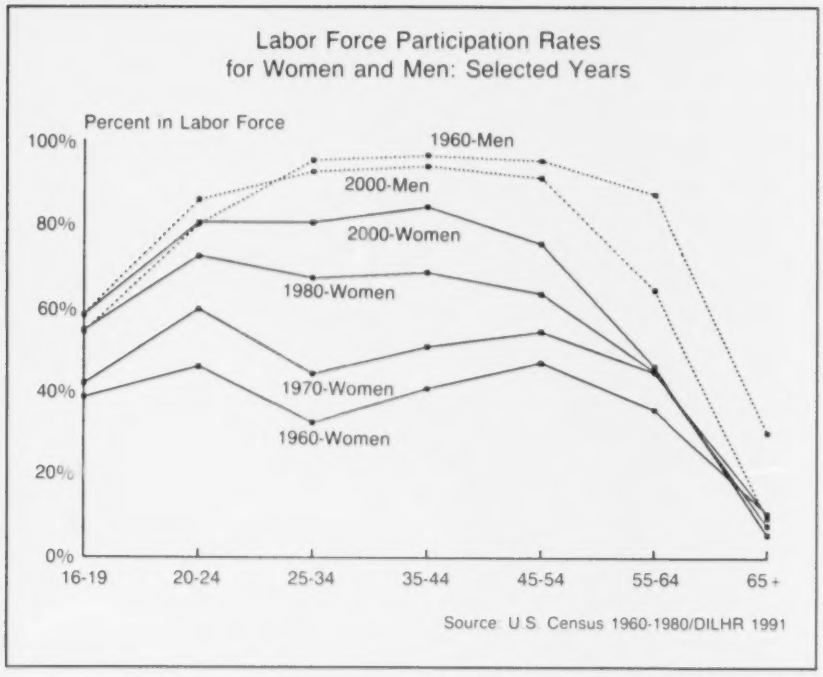


Figure 4

workers, little increase has come of such efforts.

Historically, men and women begin leaving the labor force in large numbers by age 55. DILHR projections estimate that by 2000, men age 55 to 64 will be about a third less likely to remain in the labor force than their counterparts age 20 to 54. These same DILHR projections estimate that women age 55 to 64 will be about half as likely to remain in the labor force than younger women.

Employers have had little success in attracting older men or women into the labor force. Generally, labor force participation rates for men age 55 and over have been falling since 1960. This decline is expected to continue at least through 2000. Despite the rising labor force participation rates for all women age 16 to 54, rates for women age 55 to 64 have remained stable since 1970. For women over 65, labor force participation rates have actually fallen as their non-wage income has risen with expanded eligibility for pensions and the availability of higher Social Security benefits.

Help Wanted — Minorities

Differences in rates of migration, births, and deaths for whites and non-whites are slowly altering the composition of Wisconsin's population. As the population changes, the state's labor force is slowly becoming more diverse. Wisconsin's minority population is composed mostly of African Americans and persons of Hispanic descent. Together, members of these groups accounted for about 80 percent of the state's minority population in 1980. The remaining 20 percent of the state's minority population in 1980 were Native Americans and Asians. Since 1983, federal government relocation of refugees from southeast Asia to Wisconsin has greatly increased the size of the state's population of Asians.

In 1960, minorities constituted about 3 percent of the state's population. In 1980, their share had grown to about 7 percent of the population. By 2000, all minorities in Wisconsin will make up about 10 percent of the state's population.

The state's minority population is, on average, younger than the white population. As a result, minority participation in the state's labor force is generally lower than their share of the state's population. The most recent available estimates for the state's labor force, for example, indicate that minorities constitute less than 5 percent of the state's labor force. Over the next decade, a growing number of minorities will be entering the state's labor force. At the same time, few older minority workers will be leaving the labor force. As a result, the minority share of the workforce will continue to grow in Wisconsin.

Wisconsin's Labor Force is Slowly Aging

Overall, Wisconsin's labor force is aging. Although there will be fewer workers over age 55, the age distribution of Wisconsin's labor force in 2000 will resemble more closely that of 1960 than that of more recent experience.

In 1960, the median age of Wisconsin's workforce was 41.0 years. By 1980, the median age had fallen to 34.4 years. In 2000, the median age is expected to rise to 39.1 years. Although the median age of the workforce is increasing, it is unlikely to reach previous highs experienced in the mid-1960s unless older workers remain in the labor force in greater numbers than expected. DILHR projects the number of workers over 55 actually will fall by more than 10 percent between 1980 and 2000.

The median age of Wisconsin's workforce fell in the mid-1960s as workers born at the beginning of the post-war baby boom began entering the labor force. DILHR projections indicate that between 1987 and 2000, the state's labor force will become more concentrated in the prime working years:

Percentage of Labor Force

Labor Force Segment	*1960*	*1980*	*2000*
Youth	16.5	24.9	16.5
Prime	63.6	60.6	72.4
Older	19.8	14.5	10.8

As the oldest baby boomers turn 45 in 1991, the share of younger workers (age 16 to 24) is falling, while the share of workers in the prime labor force (age 25 to 54) continues to rise. Contrary to common wisdom, the share of older workers (age 55 and over) will

continue to decrease over the next decade. Only as the earliest baby boomers turn 55 in 2001 will they begin to swell the ranks of older workers.

Education Levels Are Rising

The level of education completed by workers is an important factor in their general work readiness. Information on the current education levels of Wisconsin's labor force is not yet available from the 1990 Census. National data, however, point to rising levels of educational attainment for the U.S. labor force. These increases parallel those for the population as a whole. The national data indicate that, on average, the labor force tends to be better educated than the adult population as a whole.

Higher levels of educational attainment in the workforce than in the general adult population arise for two reasons. First, the median years of schooling completed by younger adults in Wisconsin and in the nation as a whole is higher than that of older adults. Because younger adults are more likely to be in the labor force, their higher levels of education raise the overall distribution of educational attainment for the labor force as a whole. Second, national studies indicate that workers with less than a high school diploma are more likely to assume they could not find work. As a result, they are less likely to be counted as members of the labor force.

Wisconsin's population was much better educated in 1980, the last year for which state level data are available, than in 1960.

In 1960, nearly six in ten people in Wisconsin age 25 and over had not completed high school. By 1980, fewer than three adults in ten had not completed high school. Over the same twenty years, the share of the adult population who had attended or graduated from college nearly doubled, rising from about three in twenty in 1960 to three in ten in 1980.

Years of Schooling Completed By Wisconsin's Population are Increasing

	Cumulative Percentage of Population Age 25 and Over		
Schooling Completed	**1960**	**1970**	**1980**
4 or More Years of College	6.6	9.8	14.8
1 to 3 Years of College	15.3	19.7	29.2
4 or More Years of High School	41.6	54.5	69.7
1 to 3 Years of High School	57.3	70.2	82.1
Total Population over 25	**100.0**	**100.0**	**100.0**

Source: U.S. Bureau of the Census, Census of Population, 1960-1980.

Implications For Employers

A more experienced workforce should help to raise productivity: As employers created huge numbers of new jobs between the mid-1960s and the mid-1980s to absorb baby boomers into the U.S. economy, productivity growth fell sharply. As fewer new workers enter the labor force over the next twenty years, the overall experience level of the workforce will continue to rise. With nearly three out of four workers in the prime working years, productivity growth should also rise.

Employers will need to seek new sources of innovation and renewal: New workers, while inexperienced, often provide small to mid-sized employers with an important source of new skills and information about new work practices. With a smaller stream of new workers entering the labor force over the next ten years, employers will need to rely more on continuing education programs for themselves and their workers for information and assistance in upgrading their operations and the skills of their workforce.

Increased diversity could expand opportunities for women and minorities: Women make up nearly half the workforce in Wisconsin, but most women and minorities continue to prepare for and seek employment in low skill/low wage jobs. As competition for high skill/high wage workers increases, employers will need to create a more diverse workforce to fill these positions. To obtain the workers they need, employers will need to expand opportunities for women and minorities to prepare for and obtain high skill/high wage jobs. Employers will need to address issues of discrimination and harassment in the workplace to be able to create and retain a multicultural and diverse workforce.

A better prepared workforce will be more flexible and receptive to lifelong learning: Young people are more likely to stay in school longer, complete high school, and seek postsecondary education and training than ever before. As a result, new workers should come to the workplace better prepared academically than in the past. Higher levels of educational preparation should lessen the need over the next ten to twenty years for extensive basic skills remediation in the workplace. Nevertheless, employers need to inform educators of their needs for high order basic skills (e.g., technical or applied mathematics, better communications skills, problem solving and decision making) to avoid the need for remediation in the future.

5. Industrial and Occupational Dynamics

Unlike many other states, Wisconsin is well-positioned to create a high skill/high wage economy. Wisconsin has a strong and diverse economy. Through the wise use of the state's natural resources, Wisconsin has developed a diversified agribusiness sector, a well-developed tourism industry, and a major pulp and paper products industry. Investments in the state's human resources have also supported the development of a strong industrial base in Wisconsin.

The Wisconsin Department of Industry, Labor and Human Relations (DILHR) collects and publishes data about current industrial and occupational employment in the state. DILHR also develops, biennially, medium-range projections of industrial and occupational employment for the state. These projections are based on expectations about changing demand, technology, and business practices. They provide estimates of overall growth in the state's economy and indications of broad changes and trends in employment in specific industries and occupations.

The changes needed to create a high skill/high wage economy for Wisconsin would alter the assumptions used to generate the DILHR projections. More widespread adoption of new technology and ways of organizing work, for example, would change the kinds of jobs available in our economy. As goods and services produced in Wisconsin became more competitive on the world market, rising demand for goods and services produced in the state would increase overall employment. Nevertheless, the historical data and projections available from DILHR provide a useful description of the current state of our economy and the directions in which it is moving.

Employment Growth Will Slow Between 1988 and 2000

Sustained employment in Wisconsin grew rapidly during the twenty year period from the mid-1960s to the mid-1980s as the state's economy expanded to provide jobs for the post-war baby boom. Although annual rates of employment growth fluctuate with changes in the business cycle, employment in the state expanded, on average, by 2.2 percent per year between 1963 and 1982.

During the 1980s, employment growth slowed to an average rate of increase of 1.3 percent. Reflecting the slowing of growth in the labor force, the rate of increase in the state's total workforce will continue to fall. Between 1988 and 2000 total employment in Wisconsin is expected to grow by only 313,900 new jobs according to the most recent DILHR projections.

Total civilian employment in the state averaged 2,323,520 in Wisconsin in 1988 and is projected to grow to 2,637,510 by 2000. Job growth at this level would constitute a 13.5 percent increase in total employment over the twelve years or an average increase of less than 1.1 percent per year.

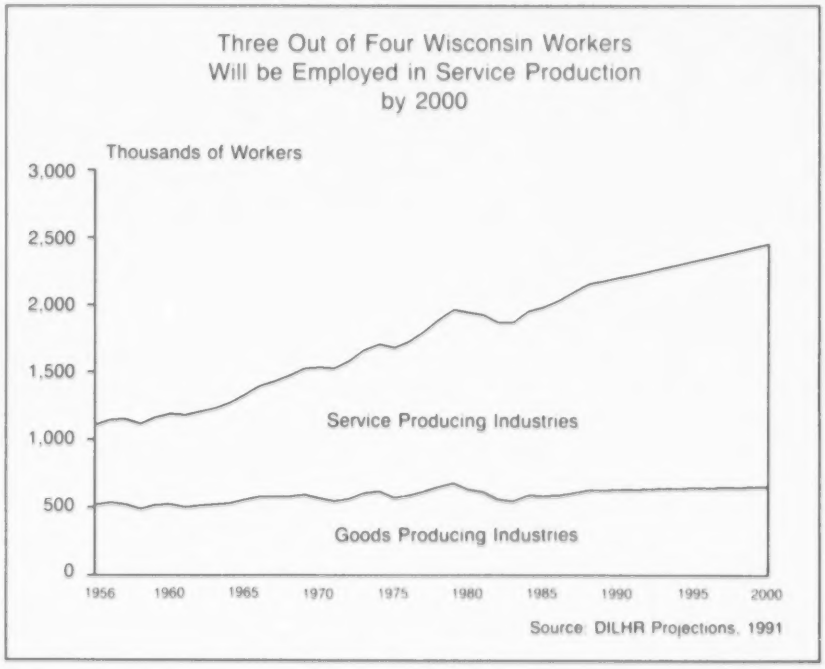
As employment growth slows, increases in productivity must account for a larger share of growth in the total amount of goods and services produced in the state. Only by creating an effective and highly skilled workforce in Wisconsin will we continue to enjoy a strong and prosperous economy.

Manufacturing Provides a Strong Base for Wisconsin's Economy

Although firms involved in business and personal services and trade will provide most of the new jobs in Wisconsin between 1988 and 2000, manufacturing will continue to provide a strong economic base for the state. Manufacturing jobs will provide about one-fourth of the state's total non-farm wage and salary employment in 2000. DILHR projections estimate that services and trade will each provide jobs for about another one-fourth of the state's workforce in 2000.

Despite on-going employment growth in services and trade, Wisconsin will continue to rank as a major industrial state, both in terms the share of total employment in manufacturing and as measured by the amount of shipments of manufactured goods out of the state.

Figure 5



Dominated by heavy manufacturing and agribusiness, Wisconsin's economy is vulnerable to a number of factors that lie outside its control. Because most of the manufactured and agricultural goods produced in the state are destined for export, federal and international monetary and fiscal policies have major impacts on the ability of Wisconsin's employers to compete in global markets. High interest rates and overvalued American currency in the 1980s, for instance, led to major problems for all American exporters.

Coupled with the spread of foreign competitors gaining global market share, the emergence of new advanced technologies and new standards of international competition, Wisconsin's employers are faced with the need to invest both in new technology and in the skills and knowledge their workers need to make this technology more productive.

Growth in Service Sector Employment Will Continue

The health of the state's goods producing sector is central to the overall health of the state's economy. Although only one in four jobs in Wisconsin in 2000 is expected to be in the goods producing sector, these industries will continue to provide a major source of employment in the state. Employment growth in industries in the service sector have provided nearly all of the net job growth in Wisconsin since the early 1960s. Continuing expansion in all portions of the state's economy, however, have helped to create most of these new jobs. Employment growth in business-related services such as data processing, accounting, and financial services, for example, has been directly linked to changes overall economic growth in the state.

In other cases, the linkage has been indirect. The rapid expansion of employment in eating and drinking establishments, for example, accounts for a significant proportion of new jobs in retail trade. Economists attribute much of this growth to changes in consumer behavior tied to changes in the composition of the labor force. With more women at work, families and individuals have significantly increased the proportion of meals prepared and eaten outside the home. Expansion in eating and drinking establishments and tourism has also been linked to growth in business-related travel.

Other areas of significant growth in the service sector include the rapid expansion of employment in health-related services. Expansion in this area has resulted from changes in public policy (i.e., the creation of the Medicare and Medicaid programs) and expansion of health care benefits for employed persons and their dependents.

Manufacturing Provides a Strong Base for Wisconsin's Economy As Employment in Service and Trade Expands

(Employment in Thousands)

Industry	1960	1970	1980	1990	2000
Total Civilian Employment	1,580.6	1,757.0	2,172.0	2,475.3	2,637.5
Total Non-Farm Wage and Salary Employment	1,191.8	1,513.2	1,938.2	2,280.5	2,450.5
Goods Producing	520.2	548.2	630.7	643.0	650.5
Mining	3.8	2.6	2.6	2.3	2.1
Construction	56.0	62.0	70.1	81.0	76.7
Manufacturing	460.4	483.6	558.0	559.7	571.7
Durable Goods	291.7	304.2	364.4	336.4	344.4
Non-durable Goods	168.7	179.4	193.6	223.3	227.3
Service Producing	671.6	965.0	1,307.5	1,637.5	1,800.0
Transportation and Utilities	74.5	80.9	92.1	106.3	104.2
Trade	243.9	327.4	436.8	538.2	592.4
Finance, Insurance, and Real Estate	45.7	60.5	93.3	119.9	141.0
Services	144.3	230.7	364.2	531.2	599.4
Government	163.2	265.5	321.1	341.9	363.0
Agriculture	233.9	115.6	110.0	N.A.	N.A.
Self-employed	N.A.	N.A.	N.A.	N.A.	183.7

Source: DILHR Bureau of Labor Market Information, historical data and industrial projections, 1991. "N.A." indicates that a reliable estimate is not available. Because Total Civilian Employment is estimated separately from Non-farm Wage and Salary Employment, column totals do not add.

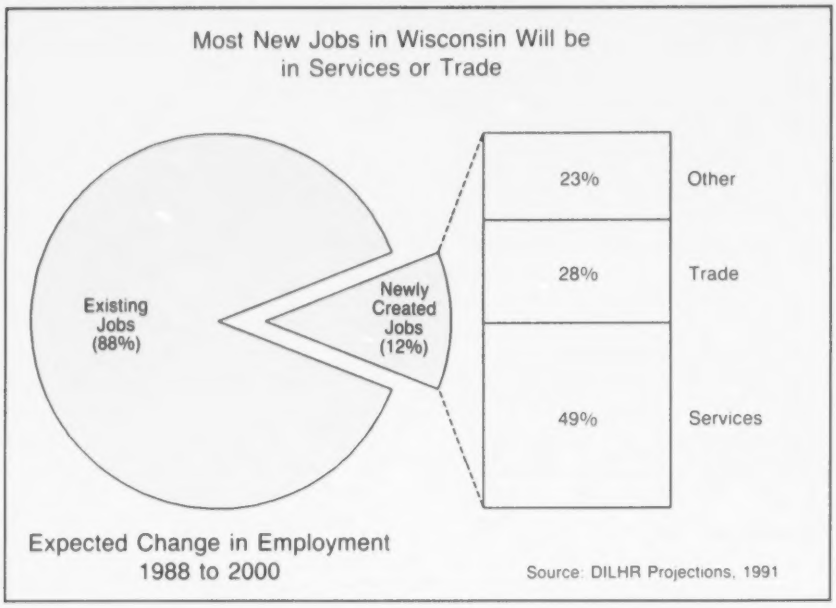


Figure 6

Employment Gains in Service and Trade Will Provide Most New Jobs

Wisconsin's service sector will continue to expand over the next ten years. As manufacturing employment remains stable, employment growth in service industries and trade is projected by DILHR to provide about three-quarters of all new jobs in the state. (See Figure 6.)

Most of these new jobs will again be added through expansion in health-related services and eating and drinking establishments. DILHR anticipates economic growth in the state will provide 50,740 new health-related jobs and 31,930 additional jobs in eating and drinking establishments. Other industries expected to experience significant growth include business services (29,610 new jobs) and education services (24,860 new jobs). Together, these four industries are expected to provide more than 40 percent of all new employment opportunities in Wisconsin between 1988 and 2000.

High Skills, Not High Tech

Wisconsin is not a major player in the high technology industries in the U.S. These industries are generally characterized by relatively high levels of employment in science and technical occupations and of spending for research and development. Wisconsin ranks below the national average for employment in high technology industries. In 1987, 5.1 percent of total non-farm wage and salary employment in the state was in high technology industries as compared to 6.2 percent nationally.

Despite its relatively poor showing in high technology, a significant proportion of total employment in Wisconsin engaged in high skill occupations. At least 70 percent of the jobs in Wisconsin's economy require significant specialized preparation and training beyond high school. Moreover, jobs that do not require this kind of training are growing, but not as rapidly as those higher skill jobs.

Wisconsin Workers Fill a Wide Range of Occupations

Just as no single industry dominates the state's economy, no single occupational category offers employment opportunities for the majority of Wisconsin's workers. Likewise, the wide range of occupations available in the state offers an equally wide range of earnings potential for the labor force. Although data on wages at the state level is not complete, national figures on median weekly earnings provide rough estimates of the relative rankings of occupational categories.

In 1988, about one-third of all workers in the state were engaged in occupations with significantly higher than average median weekly earnings. These occupations include: management and administrative occupations; professional and management support occupations, protective services; and precision production, craft, and repair occupations. Another 15 percent of the state's workers were engaged in technical or marketing and sales occupations that provide mid-range median weekly earnings. The remaining one-half of all workers were engaged in occupations that provide significantly lower wages. These include: administrative support and clerical occupations; most service occupations; agriculture-related occupations; and operators, fabricators, and laborers.

Wisconsin's Future: High Skills or Low Wages?

High skill/high wage jobs are already a growing portion of the state's economy. More than 42 percent of all new jobs added to Wisconsin's employment base between 1988 and 2000 are projected by DILHR to be in higher wage occupations. Another 18 percent are projected to be in mid-range technical and marketing occupations. These high skill/high wage occupations are expected to grow 1.5 times faster than low wage occupations in Wisconsin.

The largest sources of new employment in higher wage occupations are teaching (14,619 new jobs) and registered nursing (10,207 new jobs). Altogether, growth in professional employment will account for 43 percent of the new high wage jobs in the state. The rest will be shared by growth in high skill jobs in management, administrative, and management-related occupations and in precision production.

Many of these new administrative jobs are linked to expansion in trade and in the state's overall economy. These administrative jobs are expected to provide 41,880 new jobs between 1988 and 2000.

Manufacturing is also expected to contribute about 20 percent of the new high skill/high wage jobs between 1988 and 2000. Despite slow employment

growth in manufacturing, growth in high skill jobs for mechanics, installers, and repairs, for example, is expected to provide 13,220 new jobs in Wisconsin by 2000.

Expansion in employment for technicians is expected to continue to provide a significant source of new high skill/high wage jobs in the state. DILHR projections indicate that major sources of new employment in these occupations with mid-range earnings will be in occupations related primarily to health care and business services.

Jobs in high skill/high wage occupations will account for 60 percent of the new jobs added to Wisconsin's economy between 1988 and 2000. The remaining 40 percent of new jobs are expected to be in lower wage occupations. Lower wage employment is expected to continue to expand in service and clerical occupations found primarily in the service sector of the economy. Expansion of eating and drinking establishments, for example, is expected to add 36,940 new jobs in food and beverage service occupations to the state's economy by 2000. Growth primarily associated with trade and business services is expected to add 37,150 new jobs in administrative support and clerical occupations.

Slow growth in manufacturing employment will translate into few new low wage jobs in the goods producing sector. Operators, fabricators, and labors are expected to add only 4.3 percent of all new jobs between 1988 and 2000.

Looking to the Future

Currently, the outlook for a high skill/high wage economy in Wisconsin is positive. Significant new growth and job opportunities are expected in low wage jobs. But high skill/high wage jobs are growing more rapidly and will offer even more employment opportunities in the future. The challenge facing our state is to provide workers with the training and educational preparation needed fill these high skill/high wage jobs.

Occupations with Higher to Mid-Range Wages Expected to Provide Most New Jobs As Wisconsin Enters the 21st Century

(Employment in Thousands)

Occupational Categories	U.S. Median Weekly Wages	Estimated Wisconsin Employment				Annual Openings		
		1988	2000	Growth	Percent of Total	New Jobs	Replacement of Existing Workers	TOTAL
Total, All Occupations	$415	2,323.5	2,637.5	314.0	100	26.2	81.6	107.8
Professional	$610	288.0	345.7	57.7	12.4	4.8	9.6	14.4
Managerial & Administrative	$608	167.8	197.2	29.4	7.2	2.4	7.4	9.9
Management-related Occupations	$545	59.5	72.0	12.5	2.6	1.0	1.9	2.9
Precision Production/Craft/Repair	$477	263.6	291.4	27.8	11.3	2.3	8.8	11.1
Protective Service Occupations	$468	29.9	35.6	5.7	1.3	.5	1.5	1.9
Marketing & Sales Occupations	$410	244.2	280.9	36.7	10.5	3.1	10.6	13.7
Technical Occupations	$378	79.4	97.8	18.4	3.4	1.5	1.6	3.2
Operators/Fabricators/Laborers	$339	444.5	458.1	13.6	19.1	1.1	11.9	13.0
Administrative Support and Clerical	$350	360.0	396.1	37.2	15.4	3.1	11.3	14.4
Agriculture-related Occupations	$257	21.0	24.7	3.7	.9	.3	1.2	1.5
All Other Service Occupations	$245	366.5	438.0	71.4	18.1	6.0	15.7	21.7

Source: DILHR Bureau of Labor Market Information, historical employment data and industrial projections, 1991. U.S. Department of Labor, Bureau of Labor Statistics, median weekly earnings data by detailed occupation for 1990.

CHARGES TO STAKEHOLDERS

6. Building an Agenda for Change

Every day, business people in Wisconsin and across our nation are faced with choices about the products and services they produce. The choices they make — what to make or sell, how to produce it, and how to market it — determine how well we all live. Too many employers are choosing to compete on the low end of the market, relying on increased mechanization, mass production, and low skills to cut costs. For most of their employees, this choice continues to drive down real wages. This, in turn, reduces purchasing power and consumer demand.

A growing group of employers in Wisconsin have learned the hard lessons of the last fifteen years. After watching their market share erode and productivity growth stagnate, they have begun to adopt new strategies to compete on the high end of the international market. These employers are raising expectations about the role of their front-line workers in problem solving and decision making on the job. The high skills they demand of their workers result in higher productivity, profitability, wages, and purchasing power.

In short, these employers have begun to create a workforce for Wisconsin that can outperform workers anywhere in the world. As they do, these more innovative employers are experiencing real skill shortages and expressing concern about growing educational needs of their workforce.

The Commission's goal in this report has been to identify strategies to ensure that employers in Wisconsin enter the twenty-first century with the workforce they need to compete at the high end of the world market place. Much of our work has concerned suggestions for improving the skills of Wisconsin's workforce and strengthening the state's Technical College System.

Few of the strategies we propose provide short-run solutions. Instead, guided by ten major policy recommendations, our emphasis has been on identifying ways to increase cooperation, coordination, consensus building by business and industry, educators, labor, students, parents, and state policy makers.

Creating a different future — one in which highly skilled workers can command higher wages — will require individual and institutional changes in behavior and attitudes. The Commission does not envision a time in which we will not need to address the issues considered in our report. Instead, we believe that we must continously expand and renew the skills of our workforce and improve the educational preparation of our new workers.

An Agenda For Change: Business and Industry

- Pursue a high skill/high wage economic strategy.
- Actively support education and training initiatives to maintain and upgrade the skilled workforce.
- Support and provide workers with needed training and retraining to create and maintain high levels of skills.
- Acknowledge the need for and provide opportunities to all employees for lifelong learning.
- Work together with educators and workers to identify skill competencies and standards needed in the workplace.
- Provide work experience and other opportunities for secondary school and technical college educators to renew and upgrade faculty competencies.
- Assist in obtaining state-of-the-art equipment and facilities for technical education and training.
- Become fully involved in planning and evaluating education and training programs.
- Provide cooperative education, work experience, and apprenticeship placements.
- Communicate employment opportunities and skill requirements to workers, parents, students, and educators.
- Provide career exploration experiences for youth.
- Inform parents of the need, importance, and career potential of skilled workers.
- Consider expansion of operations in Wisconsin as a first option.

Business and Industry

Building an agenda for change will require the commitment of the business community of our state to actively pursue a high skill/high wage economic strategy. Practically, this means that business and industry must plan and implement changes in their operations to incorporate new technology and ways of organizing work. As they expand the responsibilities of front-line workers, employers must also increase their investments in upgrading and renewing the skills or their workers. They must also take an active role in their community to support and implement initiatives to improve the educational preparation of new workers.

Educators

The responsibility for creating a high skill/high wage economy cannot lie with employers alone. Our public schools and technical colleges must

provide students and workers with the skills, knowledge, and attitudes they need to perform effectively in the workplace.

Wisconsin has a proud tradition of investing in the education and training of its citizens. Instead of creating new institutions or seeking new resources, we need to refocus existing resources to better meet the needs of employers, workers, and students. Making needed changes will require the commitment of educators in public schools and technical colleges to work with each other and with employers and workers. Only by working together can educators, employers, and workers begin to improve the skills base of the existing workforce, to create a vision of the high levels of educational achievement students must bring to the workforce, and to align vocational/technical programming with identified needs in the workplace.

An Agenda For Change: Educators

- Work with each other and with employers and workers to identify skill competencies and standards needed in the workplace.
- Develop curriculum to meet identified education and training needs.
- Implement performance-based education that meets workplace needs and standards and that provides high levels of skills to all workers.
- Fully involve employers in program planning, implementation, and evaluation.
- Deliver programs in ways which maximize their accessibility for workers and students.
- Clearly and forcefully communicate to students information about employment opportunities, education and training requirements, and educational prerequisites.
- Create expectations of high levels of educational and skill competency attainment for all students.
- Seek cooperative education, internships, and training placements for students.
- Inform parents about technical education and career opportunities for their children.
- Make the most effective and efficient use of public resources.

Labor

Additional responsibility for creating a high skill/high wage economy must lie with workers. The industry, skill, and productivity of Wisconsin's workers have helped to create a strong and diverse economy in our state. As standards of international competition change, Wisconsin's workforce must respond by continuing to upgrade and broaden the skills and knowledge they bring to the workplace.

Regaining our competitive edge, will require the commitment of workers to increasing the skills, knowledge, and motivation they bring to the workplace. It will also require workers to actively embrace ongoing efforts to retrain, upgrade, and renew their skills on the job.

An Agenda For Change: Labor

- Develop and fully exercise the work habits needed to meet the high levels of skill competency needed in a high skill/high wage economy.
- Actively engage in lifelong learning and technology upgrading.
- Provide peer support for training and retraining and assist in bringing co-workers into workplace education and training efforts.
- Work with employers and educators to develop task and skill identification analyses needed to develop state-of-the-art curriculum.
- Serve as role models, instructors, and mentors to students to develop technical, cognitive, motivational, and social skills during cooperative education, work experience, and apprenticeships.
- Promote and support public policy advancing a high skill/high wage philosophy.

Students

The young people of Wisconsin are our future workforce. Improving the long term performance of the state's economy requires changes in the skills, knowledge, and attitudes of young people entering the workforce. Redesigning the educational system will provide young people with clear pathways to high skill/high wage occupations.

Ensuring the success of these efforts will require the commitment of students to pursuing and attaining the high educational standards needed to support a high skill/high wage economy. It will require some students to forego some earnings while they are in high school to provide increased time for studies. It will also require the commitment of the entire community to raising expectations about the ability of students to meet higher standards of achievement. In addition, it will require educators, employers, workers, and parents to create and support increased opportunities for work-based learning in business and industry settings across the state.

Parents

Parents are the single most important influence on the attitudes and values of

their children. Improving the educational performance of young people and helping them to identify and attain high skill/high wage career goals will require the commitment of parents. They must raise their own expectations for the educational achievement of their children and provide a supportive home environment that places a priority on educational achievement. It will also require increased parental involvement with teachers and guidance counselors throughout the educational experiences of their children.

An Agenda For Change: Students

- Prepare to meet the skill requirements of employers pursuing a high skill/high wage economic strategy.
- Develop positive work habits.
- Internalize expectations of high levels of academic achievement.
- Seek education and training experiences from which to benefit.
- Seek assistance in gaining the on-the-job technical, cognitive, motivational, and social skills during cooperative education and apprenticeship experiences.
- Explore many career alternatives including technical education and training.

State and Local Policy Makers

In Wisconsin, we have long recognized that the people of our state are our most important resource. Our public policies have placed major emphasis on developing the skills and knowledge of our populace. As a result, relatively high levels of public spending on education and training for our citizens and on technical assistance available to business and industry in our state have contributed to the overall strength of Wisconsin's economy.

Although the Commission recognizes that implementing some of our recommendations may require new public funds, most should not. Much of the cost of training and upgrading our existing workforce, for instance, must be borne by business and industry as firms position themselves to compete more effectively in the world economy.

Many of the Commission's other proposals involve changing existing education and training practices. Before committing additional public funds, the Legislature, the Governor along with other members of the executive branch, local school boards, and vocational, technical and adult education district boards should reallocate and redirect existing funds and resources to support the needed changes.

In addition to providing funding and institutional support, public policy determines the broad outlines for change in our society. Making the changes needed to move to a high skill/high wage economy will require the commitment of state and local policy makers to support efforts to refocus our public education system to provide students with the knowledge, skills, and attitudes needed to succeed in the workforce. It will also require support for the many other initiatives the Commission has presented in this report.

Forging New Linkages is the Key to Success

Few of the recommendations and strategies the Commission has proposed can be accomplished by isolated groups of stakeholders. Throughout this report, the Commission has stressed the need for building new linkages between business and industry, labor, and educators. The Commission has also stressed the need to forge new linkages between educators, parents, and employers.

Nor can the Commission's recommendations be implemented by mandate. Nearly all of our recommendations require change in individual attitudes, beliefs, and behavior on the part of each of us in Wisconsin. Changes of the sort we envision can be supported by changes in public policy, but they must be acted on by each of us seeking opportunities to work with others. Together, we can and must create a more competitive workforce to ensure economic prosperity for our state.

An Agenda For Change: Parents

- Impress upon children the fundamental value of making the effort to learn.
- Meet with teachers and guidance and counseling staff throughout their child's educational experience.
- Provide a home environment which puts education first.
- Be realistic about their children's abilities and interests.
- Spend time with children exploring career options.
- Learn about job availability in their community and in the state.

An Agenda For Change:
State and Local Policy Makers

- Promote and ensure a positive business climate for Wisconsin.
- Remove barriers to full interaction between employers and educational systems.
- Provide educators with the resources necessary to deliver high skill training and retraining.
- Ensure policy and resource support for lifelong training and retraining.
- Ensure accountability of education and training institutions.
- Provide assurance to parents and students that work and learning experiences are appropriate for youth.
- Establish a state policy of access to affordable, world-class vocational-technical training.
- Explain to parents and youth our society's expectations of increased educational performance through optimistic, but clear messages on the responsibility of youth to make the effort to learn.

Related Reading

Major resources consulted by the Commission include:

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